

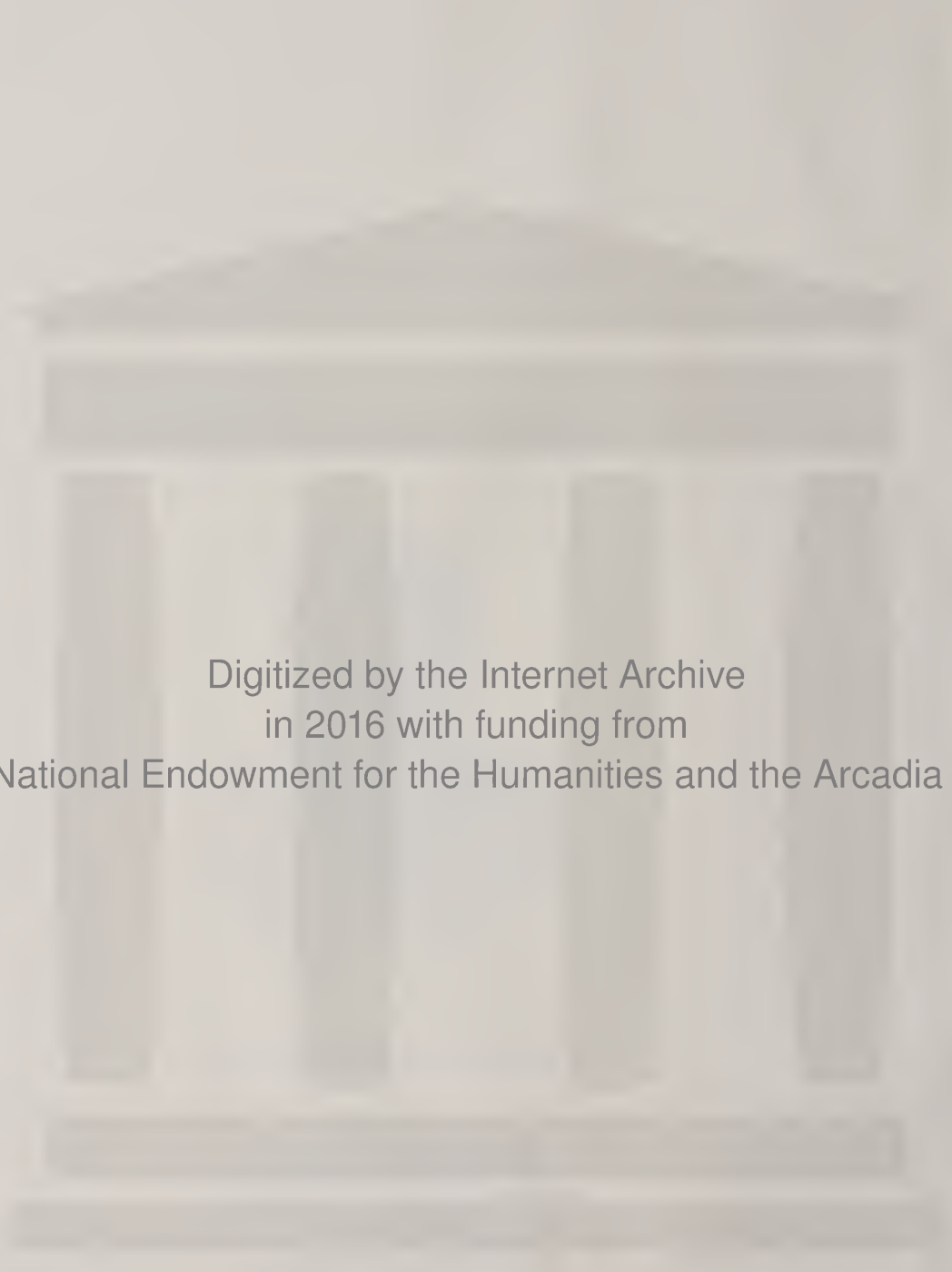
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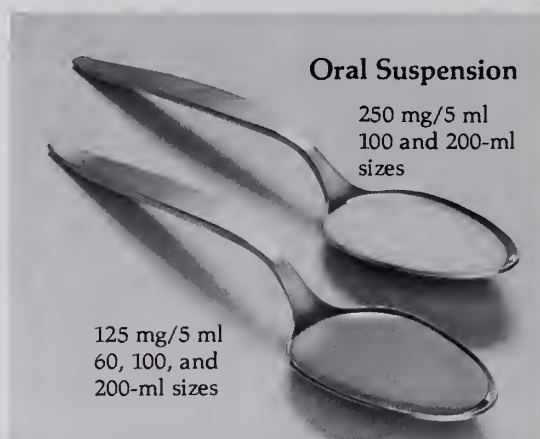
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Sponsored by the Minnesota Medical Association
At Its 1982 Annual Meeting, May 26-28, 1982
Radisson South Hotel, Bloomington

The Local Arrangements Committee for the 1982 MMA Annual Meeting wishes to repeat an event often associated with past annual meetings -- a physicians' art show. The art show will be open during exhibit hours on Thursday and Friday, May 27-28, 1982.

If you would like the opportunity to exhibit your work to your physician colleagues, please send in the form below today so that space can be reserved for your exhibit. We will send more complete information and an official application form in February.

A small entry fee (regular fee - \$10; residents and medical students - \$5) will be charged. This can be submitted with the official application form to confirm your entry.

Do you know another physician who is an artist? Why not pass along this announcement?

The Art Show Steering Committee

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"The Physician as Artist" -- Tentative Space Reservation

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James H. Sova
Assistant Executive Vice President
Minnesota Medical Association
1930-1981

We regret to report the death on December 8th of James Sova, 51, Assistant Executive Vice-President, Minnesota Medical Association, and Division Director of Socio-Economic Affairs. He was attending the interim meeting of the AMA in Las Vegas, Nevada.

Jim began his career with MMA in 1968 and was known throughout Minnesota by physicians, legislators, government officials and health professionals as the foremost advocate for medicine. His dedication and loyalty in serving medicine and promoting the profession's best interests will be long remembered.

Jim was many things to many people — statesman, lobbyist, politician, confidant, adviser, leader, sportsman, husband, father, son — but above all, he was our friend. His passing creates a void among us all.

We shall miss you, Jim.

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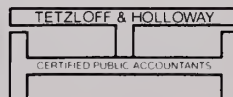
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Editor's Notebook

Death of A Friend of Medicine

December 11, 1981 — New Brighton, Minnesota: We buried Jim Sova here today. Hundreds crowded into Christ The King Lutheran Church for the Memorial Service. The Minnesota Medical Association office staff was here. So were scores of Minnesota physicians and many of the Minnesota legislators.

The crowd's size and makeup didn't surprise those of us who knew him. Jim Sova was that kind of fellow. His earnest and infectious humanity cut across party lines, and he was one of the best friends the medical profession ever had. Jim was particularly enthusiastic about his special friends, the doctors of Minnesota. He conveyed this enthusiasm to politicians of every stripe.

Jim, you see, was our lobbyist. Oh, I know he carried with dignity the more imposing title of Assistant Executive Vice-President and Director of the Socio-Economic Division of the Minnesota Medical Association. And I know he did a fine job running the three Departments of that Division — Health Planning, Medical Services, and Legislative Affairs. But he was most effective as a lobbyist dedicated to defending, preserving, and advancing the cause of private and independent Medicine.

This backing of a conservative cause wasn't always easy. Until two or three years ago, saying you were conservative drew snickers in a crowd, because it wasn't an intellectually legitimate thing to be. But Jim persevered. He understood the political system. He knew the power centers of the health system — the medical school and the research community, the private practitioners, the hospitals, the insurance industry, and the other diversified participants, ranging from other health care professionals, to pharmaceutical companies, to nursing home operators. He was aware the system was one of challenges and responses, of partly winning and partly losing, and of maintaining good relationships with legislators so you could fight another day. And lastly, he was keenly conscious that organized interest groups, professional and nonprofessional, would use power and influence at every level to protect their relative positions. He could not understand why practicing physicians could refuse to participate in medical politics. Medicine couldn't afford to stay aloof from the game.

But it was a tough game — and a bruising one emotionally. Jim wore his heart on his sleeve. He suffered when his side lost. This last year he was upset when the Welfare Department recommended limiting physicians' reimbursement at the 50th percentile of 1978 fees (or 32 cents of 1981 dollars) while nursing homes and hospitals continued to be reimbursed at cost. And he resented repeated chiropractors' attempts to enter the medical field. He often said, "If chiropractors want to practice Medicine, they ought to go to medical school."

EDITOR'S NOTEBOOK

Jim was 51 when he died. He succumbed from a myocardial infarction on December 8 while attending an AMA Convention in Las Vegas. He had served us 13 years, longer than most legislators. This legislative longevity made him invaluable. He knew the territory, he covered it well, and legislators respected his knowledge.

It was wonderful to be around Jim. He was engaging, a straight talker, a rapt listener, and a warm human being.

One last thing. Jim Sova was a terrific guy. I was proud to be his friend, and he was proud to be yours. I'm sorry you all didn't know him. You would miss him as much as I'm going to.

Richard L. Reese MD

President's Letter



MMA and the 1982 Legislative Session

Among many of the activities of the Minnesota Medical Association, none is of more value to the membership than the representation and advocacy for our positions before the various levels of government. Accordingly, at this time I would like to remind you that the last half of the 1981-82 legislature will be starting on January 12, 1982. There are many issues likely to be acted upon or receive legislative attention which will significantly affect medical practice and the public health of the citizens of Minnesota. The volume of health related issues addressed in this forum is ever increasing. The Minnesota Medical Association through its Legislative Committee, aided by the Division of Socio-Economic Affairs staff, will continue to research the issues, inform the Board of Trustees and the membership, and together develop MMA positions. The Legislative Committee in recent years has been capably chaired by Doctor Merle S. Mark.

The interface between the MMA and government is comprised of the activities of our lobbyists and the contact that our individual members make with their legislators. It is essential that the quality of the contact be improved. An honest informed discussion of an issue with one's own legislator can have a very positive effect. Some important trends are developing that will have a great effect on health legislation.

First, since the passage of the Federal Reconciliation Act of 1981, the federal funds available to the states will be less in amount and less restricted in use. The monies will be available by way of a relatively small number of block grants, allowing considerable discretion as to its use by the state and local governments. The Minnesota Department of Health will receive funds from three block grants for the areas of: (1) Maternal-Child Health, (2) Preventive Health, and (3) Primary Care.

The Department of Public Welfare will receive funds from one block grant for mental health and chemical dependency. The Department of Health currently has a task force of fifteen members, one being a physician, which was formed to help decide on the criteria for the allocation of those funds. A similar task force is contemplated by the Department of Public Welfare.

It is critical that physicians have input regarding both the development of these criteria and the allocation of these funds.

Secondly, the control and responsibility for health planning is likely to change. We may see a consolidation of the seven state HSAs into a single state HSA administered by the Minnesota Department of Health. This restructuring may include the transfer of the responsibility of SHPDA to the Health Department.

Again, with changes of this magnitude, it is obvious that the views of medicine must be effectively represented. If we are not involved in the structuring of the planning process, it is unlikely that we will be very effective in influencing the resulting outcome.

Some of the health related issues which may be considered during the upcoming legislative session and which we would support could include: repeal of the Certificate of Need Act, amending the Preschool Screening Act, and amending the Hospitalization and Commitment Act. Issues that we will oppose may include a re-defining of the statute of limitations for malpractice actions against physicians, attempts to mandate chiropractic and optometric services in HMOs, legislation to allow chiropractors to withdraw and analyze blood, and mandatory licensure of x-ray machine operators.

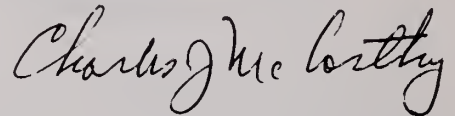
During the course of the next several months, legislative issues and others will be reviewed and

PRESIDENT'S LETTER

reported to the membership in the Legislative Committee Bulletins, The Newspage, and MINNESOTA MEDICINE. Many of these issues will be discussed at your regional medical society meetings. An over-all successful outcome, from the point of view of medicine, cannot be accomplished by lobbying activity alone; there must be a significantly increased individual effort on the part of the membership with their elected representatives. This will require that the contacting physicians be well informed on the issues and have access to their legislators.

Finally, I would like to take the occasion of this letter to pay tribute to Mr. James Sova — one of

the finest in his field. As most of you know, he had a fatal heart attack during the time of the December '81 AMA Interim Meeting. He was the Director of the MMA Division of Socio-Economic Affairs and our Assistant Executive Vice President. His knowledge of political affairs, his easy acceptance by elected office holders and their staffs, his credibility, integrity, and loyalty were truly outstanding and will always be remembered by those who had the pleasure of working with him. The Minnesota Medical Association can indeed feel proud and fortunate to have been represented by Jim Sova.



Charles J. McCarthy, M.D.
President
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Spring scenes are needed particularly at the present time.

Minnesota Medical Association
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May 26-28, 1982
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Epiglottitis

STEPHEN L. LISTON, M.D.;* LEIGHTON G. SIEGEL, M.D.;† and RUSSELL F. LaBEAU, M.D.‡

Hemophilus influenzae type B epiglottitis can rapidly produce fatal airway obstruction in children. It is essential that hospital staff establish an organized plan to be followed when suspected cases of epiglottitis are encountered. We outline such a plan which has worked well at St. Paul Children's Hospital.

EPIGLOTTITIS is a true pediatric emergency. It is one of the few conditions which can cause the death of a previously healthy child within hours. Because it is such a potentially lethal disease, it cannot be treated by medical personnel on a case to case basis. It is essential that the hospital staff establish an organized plan to be followed in the treatment of suspected cases of epiglottitis.

Etiology

Epiglottitis is an inflammation of the supraglottic larynx caused by hemophilus influenza Type B. This inflammation causes edema, stridor, airway obstruction and possible death. The key to the treatment of epiglottitis is to establish a controlled airway. Medical treatment of the inflammation is of secondary importance.

Diagnosis

A major problem is differentiation of epiglottitis from other causes of airway obstruction, particularly the more common subglottic croup.¹ Typically a child with epiglottitis was well until a few hours previous to his arrival in the emergency room. In the emergency room the child will appear very apprehensive and will tend to sit up, protruding his chin to improve his airway. He will not swallow and therefore will drool saliva. There is a notable absence of the brassy cough of subglottic croup. Infants and very young children may not assume this typical posture. Racemic epinephrine used to treat croup will not improve the symptoms of epiglottitis. A lateral soft tissue Xray of the neck (Figures 1 and 2) may help in the differential

diagnosis between epiglottitis and croup, but some words of warning are in order. Under no circumstances should a child suspected of having epiglottitis be sent unattended to the radiology department. The film should be made with the child upright. Also the treatment of a child with severe airway obstruction should not be delayed to obtain this radiograph. The diagnosis of epiglottitis is made by examination of the epiglottis. Unfortunately this examination may be enough to precipitate complete airway obstruction and this is one of the reasons why a treatment protocol must

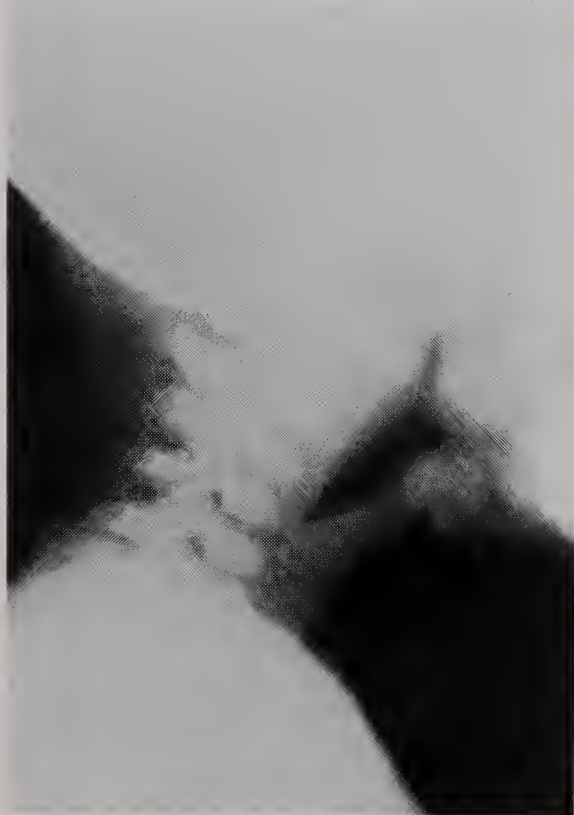


Fig. 1 — Lateral soft Xray of neck showing epiglottitis. Note the thickened epiglottis.

*Assistant Professor Otolaryngology, University of Minnesota, and Staff Otolaryngologist, St. Paul Children's Hospital, Minnesota.

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‡Clinical Instructor Pediatrics, University of Minnesota and Medical Director Emergency Services, St. Paul Children's Hospital, Minnesota.

Address for Reprints: Stephen Liston, M.D., Department Otolaryngology, A 605 Mayo Memorial Bldg., University Hospital, Minneapolis, Minnesota 55455.

be developed. It is dangerous to try to examine the epiglottis with a tongue blade or any other means without having made adequate preparation to deal with the onset of a complete airway obstruction. Obstruction may also occur suddenly and unexpectedly if the swollen epiglottis tilts backward into the airway. Watchful waiting is dangerous.

It is important that the personnel, who are treating

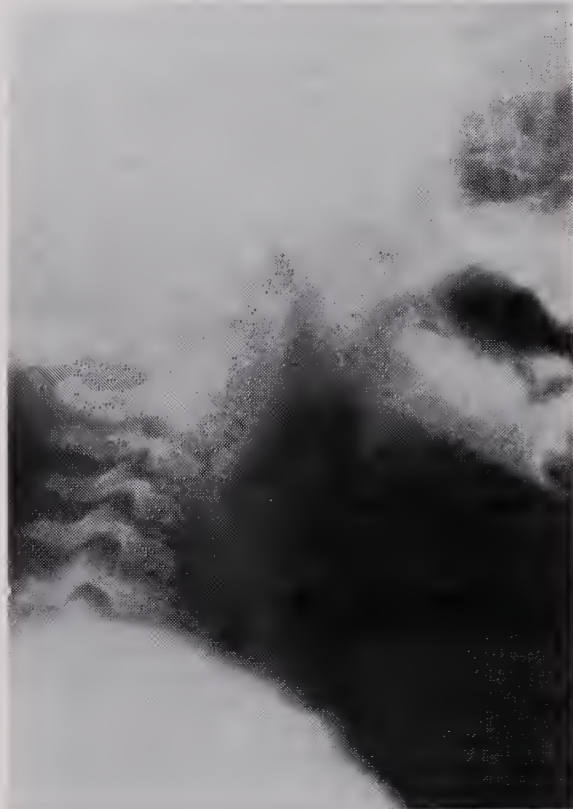


Fig. 2—Lateral soft tissue X-ray of neck showing croup. Note the normal epiglottis and the subglottic narrowing.



Fig. 3 — Age incidence of 51 children with epiglottitis.

the child, remain calm and avoid conveying a sense of fear and agitation to the already frightened child.

Methods and Materials

Between April 1972 and July 1980 fifty-one patients with epiglottitis were treated at St. Paul Children's Hospital in Minnesota. Twenty-seven were male and twenty four were female. Figures 3 and 4 show the age distribution and the monthly incidence. Thirty-seven were treated by tracheotomy while the rest were treated by nasotracheal intubation. *Hemophilus influenza* Type B was obtained from throat cultures in 26 of the patients and blood cultures in 41 of the patients. Five patients had ampicillin resistant *hemophilus influenza* cultures. Lateral soft tissue radiographs were obtained on 43 of the patients and were interpreted as positive in 40 cases.

There was one death early in the series and this patient illustrates the types of problems encountered when an organized approach is not followed. The patient was a one year old male, who was noted to become irritable and who was refusing to eat. He developed stridor and was brought to the emergency room. At that time the child's temperature was 103° F and a positive lateral soft tissue x-ray was obtained. The child was admitted and placed in mist tent and the pediatrician was called. Just as he arrived the child's airway became completely obstructed. An attempt was made to pass an endotracheal tube but the laryngeal lumen was obscured by the swollen epiglottis. A needle tracheotomy was unsuccessfully attempted and then an emergency tracheotomy was performed but the child could not be resuscitated. *Hemophilus influenza* Type B was cultured from blood obtained from the heart during the attempts at resuscitation.

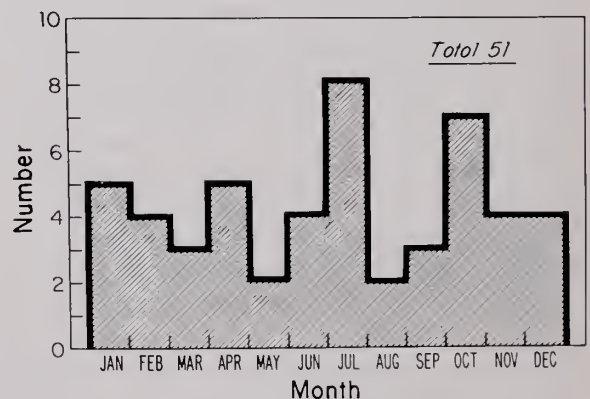


Fig. 4 — Monthly incidence of 51 children with epiglottitis.

Treatment Plan

It takes a number of trained personnel to adequately deal with a child with epiglottitis. Therefore, a physician may decide it would be safer to transport the child to a larger center from a small hospital. In this case the child should have an intravenous catheter inserted and dexamethasone 1 milligram per kilogram for the first 5 kilograms and 1 extra milligram for each additional 5 kilograms should be given. The physician and anesthesiologist should travel with the child and should have lights, oxygen, suction, a laryngoscope and endotracheal tubes with stylets, a tracheotomy tray and an Ambu bag in the ambulance. The receiving emergency room should be notified prior to departure. If ampicillin and chloramphenicol are to be given during transportation a blood culture should be drawn prior to starting the antibiotics.

When a suspected case of epiglottitis arrives at a larger emergency room, the initial assessment of the severity of the airway obstruction from the degree of the stridor and from auscultation of the chest, to some extent, determines the future treatment. Dexamethasone can be administered but this does not alter the necessity to secure a controlled airway. The lateral soft tissue radiograph is obtained if the child's condition permits. The otolaryngologist and anesthesiologist are called to the Emergency Room by the Emergency Room coordinating secretary. If the Emergency Room has been notified that a patient with epiglottitis is being transferred there, the Emergency Room coordinator secretary asks the otolaryngologist and anesthesiologist to be in the Emergency Room to meet the child.

From a practical point of view there are two common situations which may be encountered. If a child has minimal airway obstruction and a normal lateral soft tissue x-ray it is reasonable to examine the child in the operating room of the emergency department without anesthesia. We used the laryngoscope to examine the epiglottis and have all the equipment needed to intubate, bronchoscope or perform a tracheotomy immediately on hand. The equipment required includes good lighting, oxygen, suction, laryngoscopes and endotracheal tubes with stylets, a means of artificially ventilating the patient, a tracheotomy tray and a rigid bronchoscope. If the child is more severely obstructed, it is safer to transfer him to the operating room and examine the epiglottis under general anesthetic. We use halothane and oxygen by face mask, and this is administered to the child while he is still sitting up. We have not used muscle relaxants, although some physicians feel this is safe for older

children.² The laryngoscope is inserted and the epiglottis is examined. If the epiglottis is normal or injected but not swollen, the diagnosis is not epiglottitis. In cases of croup the epiglottis is frequently red and injected but it is not thickened. If the epiglottis is swollen, an attempt is made to insert a nasal tube one size smaller than would normally be used. If the nasotracheal tube can be inserted, the emergency situation is under control. If the nasotracheal tube cannot be inserted, it is sometimes possible to insert the more rigid bronchoscope. If this cannot be done, tracheotomy is performed. It cannot be overemphasized that all the equipment required must be on hand, and be checked to see that it is in working order. Any manipulation with the laryngoscope blade may precipitate complete airway obstruction. In these circumstances there is not time to search for a working suction machine, laryngoscope light or scalpel blade. Cricothyrotomy is not as feasible in children as the thyroid cartilage overhangs the cricothyroid membrane. A throat culture and blood cultures are obtained once the airway is under control. There is the possibility of the hemophilus influenza Type B being resistant to ampicillin and so the use of both ampicillin and chloramphenicol is recommended. The chloramphenicol can be stopped once bacterial sensitivities show it is not necessary.

Most of the times such a treatment plan is put into effect the diagnosis is croup rather than epiglottitis. Nevertheless, these dry runs are worthwhile as they ensure that the medical team does function effectively when a patient who really has epiglottitis does present.

Discussion

Both tracheotomy and nasotracheal intubation are satisfactory methods of treating epiglottitis.³ In the early 1970's tracheotomy was the more common treatment but more recently the trend is to use nasotracheal intubation.^{4,5} The years from 1972 to 1980 represent the period during which this change, from mainly using tracheotomy to using nasotracheal intubation was taking place at St. Paul Children's Hospital. It should be noted that it is necessary to have a physician able to perform a tracheotomy on a child available at the time the epiglottis is examined because occasional instances do occur when it is not possible to intubate the child and an emergency tracheotomy is required.

We would recommend that any medical institution which may be involved in treating cases of acute epiglottitis should establish an orderly treatment plan

to be followed in all cases of suspected epiglottitis, and this should be done before an emergency situation

occurs and such a plan is actually required.

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X-ray Machine Operators

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March 13, 1982 — Willmar — Course 1
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*For those who have taken Course 1 or one of the workshops offered during 1980-81. Course 2 will be offered concurrently with Course 1.

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Several of these workshops were offered during 1980-81. Because they were so well received, four offerings of the same material have been scheduled for 1981-82. In addition, Course 2, which builds on the curriculum presented in Course 1, will be offered twice. The workshops are designed primarily to meet the needs of x-ray machine operators who are not trained as radiological technologists. They will teach basic techniques and safety measures. For further information, contact: Nancy Daley, Foundation for Health Care Evaluation, 2221 University Ave. SE, Suite 300, Minneapolis, Minnesota 55414. 612/379-5411.

University of Minnesota Medical School Reunion

Saturday, June 5, 1982 a reunion for the University of Minnesota Medical School graduating classes of 1942, 1947, 1952, 1957, 1962, 1967, and 1972 will be held in Minneapolis. A one day seminar "New Horizons in Minnesota Medicine" will be featured at the University of Minnesota Health Sciences Complex. This program will meet the CME criteria for 5 credit hours in Category I. The keynote speaker will be John L. McKelvey, M.D., Professor Emeritus and Head of the Department of Obstetrics and Gynecology from 1938 to 1967.

Inquiries can be directed to K. A. Prem, M.D., President, Medical Alumni Society, Box 395, University of Minnesota Hospitals, Minneapolis Minnesota, 55455.

Pediatric Blunt Trauma

RICHARD G. STRATE, M.D.;* JOHN F. PERRY, JR., M.D.;* and FRANK W. QUATTLEBAUM, M.D.*

Blunt trauma comprises 80% to 90% of the serious injuries in childhood. A prospective analysis of 140 pediatric patients suffering major blunt injury revealed an overall mortality of 13.6%. Although multiple system injury was common, cranio-cerebral injury was the primary cause of deaths in all non-survivors. Rapid evaluation with early definitive care influenced the outcome of those patients not having significant head injury.

TRAUMA CONTINUES to be the leading cause of death in the pediatric patient¹. It is estimated that one half of all deaths between the ages of one and 14 years of age are the direct result of trauma^{1,2}. Blunt-impact accidents are currently responsible for 80% to 90% of the serious injuries suffered in childhood with vehicular accidents and falls being the leading etiologic factors³. Penetrating trauma is of lesser frequency and usually associated with a lower morbidity. Rapid evaluation and diagnosis with early definitive care is essential to prevent undue morbidity and mortality⁴.

In 1968, at the St. Paul-Ramsey Medical Center, responsibility for the initial resuscitation and evaluation of the severely injured patient was transferred from the emergency department to a fully staffed operating room within the hospital's main surgical suite⁴. This room is used exclusively for the care of the severely injured trauma patient and is not available for the routine daily operative schedule.

The injured patient undergoes brief initial evaluation in the emergency department by the staff physician on duty. If deemed necessary he is immediately transferred to the trauma operating room. Criteria for transfer include hypotension, multiple system injuries, altered state of consciousness when physical examination is unreliable or impossible, or whenever intra-abdominal, intra-thoracic or major vascular injuries are apparent or suspected. Occasionally, because of the obvious magnitude of the injury, the patient may be transported directly from the ambulance to the operating room with no intervening triage by the emergency room personnel.

The trauma room is a conventional operating room

equipped with an autotransfuser, arterial and venous pressure monitors, cardiac resuscitation cart, defibrillator, and separate surgical packs in readiness for diagnostic peritoneal lavage, tube thoracostomy, laparotomy, and thoracotomy. The only non-standard equipment available is a modified operating table which allows quality x-rays to be obtained of the head, neck, chest, abdomen, pelvis, and extremities in addition to contrast studies of the kidneys and bladder, without moving the patient. Full bi-plane angiography is available in an adjacent room within the operating suite. The operating room is fully staffed with nursing personnel, anesthetist and general surgeons on a 24 hour basis. Consultation is immediately available from all the surgical sub-specialties. The general surgeon in charge is the team leader during the initial phase of evaluation and treatment of the injured patient.

Materials and Methods

During the period January 1, 1977 through December 31, 1979, 1140 pediatric patients (less than 16 years of age) were admitted to the emergency room at St. Paul-Ramsey Medical Center with injuries related to blunt or penetrating trauma. In this three year period 140 (12.3%) of these patients were considered to have blunt injuries of such severity as to require evaluation and/or resuscitation in the trauma operating room. The ages of the patients ranged from one month to 15 years (mean 9.5 years). There were 98 males and 42 females.

The patients were evaluated individually, and in addition to the hospital chart, detailed trauma records were maintained on each patient in a prospective manner. The records were initiated at the time of admission to the emergency room and terminated at death or after the last outpatient clinic visit.

Results

One hundred twenty-one (86%) of the patients with

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blunt trauma survived their injuries while 19 (14%) of the injuries proved fatal. Of the 121 patients who survived their blunt injury the average time from presentation at the emergency room to their admission to the trauma operating room was ten minutes. Of the 19 patients who failed to survive the average time from the emergency room to operating room was 4.8 minutes.

The mechanism of injury was similar for both the survivors and non-survivors (Table 1). Involvement in vehicular accidents, either as an automobile occupant or a pedestrian, accounted for 54% of the injuries in the survivors and 47% in the non-survivors.

TABLE 1

Blunt Trauma	Lived	Died
Passenger	21	4
Pedestrian	44	5
Fall	15	6
Snowmobile	3	0
Motorcycle	4	0
Bicycle	17	3
Other	17	1
TOTAL	121	19

The patient with multiple system trauma commonly presents with injuries which are readily apparent. In addition, he may have further injuries which are less obvious but of equal or greater importance. When these injuries are not actively sought and recognized, delayed or missed diagnoses occur which result in increased morbidity and/or mortality. As stated by Haller, "The inability of a young child to express his pain and to localize his symptoms places multiple trauma in childhood almost in the category of veterinary medicine"³.

Diagnostic peritoneal lavage is a rapid and accurate method for evaluating the equivocal abdomen in pediatric trauma^{5,6}. It was utilized in any patient suffering blunt trauma where intra-abdominal injury was suspected or accurate abdominal evaluation was impossible. Of the 140 patients with blunt trauma 126 were thought to have a possible intra-abdominal injury and underwent diagnostic peritoneal lavage. Thirty-three (26%) of the patients had a positive peritoneal lavage leading to abdominal exploration. Ninety-three (74%) had negative results and thus avoided laparotomy. In this series there were no false positive nor false negative results for an accuracy rate of 100%. Ten patients underwent immediate laparotomy without peritoneal lavage because of continued hypotension and progressive abdominal distention (eight survivors, two non-survivors). There was one instance of delayed diagnosis of extra-abdominal injury in a patient with multiple system trauma in whom a non-displaced

metacarpal fracture was recognized after he regained consciousness 48 hours following injury.

In this series multiple injury was the rule rather than the exception (Table 2). There were 184 injuries in the 121 survivors (1.52 inj./pt.), with a range of from one to seven injuries per patient. The 19 non-survivors suffered 35 injuries (1.84/pt.), with one to seven injuries per patient. Significant cranio-cerebral injury was present in 41 (34%) of the survivors and in 19 (100%) of the non-survivors.

TABLE 2
Systems Injured

Blunt Trauma	Lived	Died
Spleen	17	2
Liver	11	0
Pancreas	1	0
Small Intestine	5	0
Mesentery	2	0
IVC	1	0
Vertebra	5	1
Humerus	6	0
Forearm	9	1
Pelvis	11	2
Femur	21	3
Lower leg	25	2
Bladder	1	0
Kidney	11	0
Thorax	17	5
Cranio-cerebral	41	19
TOTAL	184	35

Five of the 19 patients who did not survive their injuries died in the operating room. The median time between injury and death in all non-survivors was two days (range 0-44 days). The median length of hospitalization for the survivors was six days (range 1-121 days). Results of post-mortem examination were available in 17 of the 19 fatalities (89%). The primary cause of death in all 17 patients so studied was attributed to cranio-cerebral injury. Two patients, both of whom died in the operating room, did not undergo post-mortem examination. The cause of death was recorded as "massive head injury and exsanguination from pelvic fracture" and "fulminating pulmonary edema secondary to head injury", respectively.

Admission blood pressure appeared to be of some prognostic significance, but only when it was in the markedly hypotensive range. The converse, however, was not true. One of the 121 survivors (0.8%) had an admission blood pressure less than 60 mm.Hg., while 11 (58%) of those who subsequently died of their injuries had admission blood pressures that were either normotensive or only moderately hypotensive (Table 3). None of those patients admitted with an unobtainable blood pressure survived his/her injuries.

TABLE 3

Blood Pressure on Admission

	Lived	Died
Normotensive	106	8
BP <100>60	14	3
BP <60>0	1	1
No BP	0	7
TOTAL	121	19

Intra-operative transfusion of blood or blood products was required in 22 of the survivors and in six of the non-survivors. The mean requirement was 1264.55 cc's (range 220 to 5000 cc's) and 1458.33 (range 750 to 2500 cc's) respectively. Neither the differences in the number of patients requiring transfusion nor in the volume of blood administered to each group was statistically significant (chi square = 1.84, $p > 0.5$ respectively).

The single major difference in the patterns of injury in the survivors vs. the non-survivors was the incidence of cranio-cerebral injury. At the time of admission the level of consciousness of each patient was characterized and placed into one of three categories (Table 4). Seventeen of the 19 patients (89%) who succumbed to their injuries had markedly depressed levels of consciousness at the time of hospital admission (Table 5). Only 19 of 121 survivors (17%) showed a similar neurologic picture.

TABLE 4.

Level of Consciousness

- I. Alert, responds appropriately to complex commands.
- II. Drowsy or sleeps when undisturbed. Responds appropriately to noxious stimuli.
- III. Decorticate or decerebrate posturing or total absence of response to any stimuli.

TABLE 5

Level of Consciousness

	Lived	Died
I.	87	1
II.	15	1
III.	19	17
TOTAL	121	19

Of the 121 patients surviving their injuries 15 (12%) had significant permanent disability. Ten of the 15 patients (67%) had major permanent neurologic deficits directly related to cranio-cerebral injury. The majority of these patients required placement in a custodial environment due to the necessity of extensive and continuing care.

Discussion

Rapid evaluation and early therapeutic intervention are considered of singular importance in decreasing the morbidity and mortality of the traumatized patient. Inordinate delay while attempts are made in the

emergency room to stabilize a falling blood pressure, obtain Xrays, or intubate patients, especially those with severe maxillo-facial trauma, often lead to catastrophic results. In the patient with hemorrhagic shock immediate surgical intervention is occasionally necessary to obtain stabilization^{4,7}. Gertner⁸, in a review of hospital and autopsy records of 33 victims of blunt abdominal trauma found that one half of the subjects were quite possibly salvageable. One third of the deaths were associated with inadequate treatment of shock and approximately one half of the deaths were related either to excessive delay or to failure to operate in spite of symptoms of abdominal injury. In a recently published prospective study of 160 pediatric patients suffering blunt trauma Mayer⁹ found an overall mortality of 13.8%. Eighty-six point five percent of the deaths and 89% of the disabilities were found to be directly related to neurologic injury. In the study by Mayer head injury of some degree was present in all patients who failed to survive. Thirteen and one-half percent died of causes directly related to their thoracic (9%) or abdominal (4.5%) trauma and not of cerebral injury per se. The overall mortality rates in the study by Mayer (13.8%) and in the present study (13.6%) are essentially identical. The actual cause of death, however, was not so similar. In the former group a significant number of the deaths were directly related to their extra-cranial injuries while in the latter cerebral injury was the primary cause of death in all the non-survivors. Early surgical intervention, when indicated, can minimize mortality from abdominal, thoracic and extremity trauma. Cranio-cerebral injury, however, does not always lend itself to repair by surgical means as irreparable damage may have occurred at the time of the accident.

In view of our previous findings in adult trauma and the results of this current study a joint Pediatric Trauma Service has been established at Saint Paul-Ramsey Medical Center/Gillette Children's Hospital. The same general concept of immediate evaluation and appropriate intervention is being applied as discussed in this report. In order to further improve the care of traumatized child, a team concept is being applied. The designated general surgeon will be the team leader during the initial phase of evaluation and treatment of the injured child. Anesthesia, orthopedics, pediatrics and neurosurgery have designated members of this team. Other specialists will be involved as indicated. Postoperatively, the injured child will be followed by this team in the Pediatric Intensive Care Unit.

Saint Paul-Ramsey Medical Center is the designated Trauma Center of the East Metropolitan area.

Sixty-five thousand patients are seen yearly by the Department of Emergency Medicine. Approximately 50 pediatric patients per year are so severely injured as

to require immediate care in the trauma operating room. It is on this latter group that the Pediatric Trauma Team will focus.

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Harold A. Diehl Award

The committee for the Diehl Award given annually by the Minnesota Medical Alumni Association solicits nominations for this award from the physicians of Minnesota. The award is presented to one or more physicians meeting these four major criteria:

1. Preferably an alumnus of the University of Minnesota Medical School.
2. Not engaged in an academic capacity.
3. Has made outstanding contributions to the Medical School, the University, the Alumni, and the community.
4. Has had a relatively long experience in the field of medical science or a related field.

Nominations for the 1982 awards should be sent immediately to:

Konald A. Prem, M.D., Chairman,
Harold A. Diehl Award Committee
Box 395, University of Minnesota Hospitals
Minneapolis, Minnesota 55455
(612) 373-7635

Detailed supporting documents are necessary to consider nominees, but these can be forwarded later.

Cover Photograph "Reflections"

"Reflections" was photographed by Dr. Alfred O. Steldt at Wuxi, China, in October of 1980. Dr. Steldt, an ophthalmologist practicing in the Anoka Eye Clinic in Coon Rapids, used a Pentax Spotmatic Camera using Kodachrome 25 film for 1/60th of a second at f16. This was his third trip to China.

He is a University of Minnesota Medical School graduate, married, and has one daughter. Skiing is his other hobby.

In August of 1982, Dr. Steldt plans a trip to Tibet where he intends to have a photographer's holiday catching on film some of the mystery of this country.

Migraine: Not Just a Headache

DAVID A. ENGSTRAND*

Recent advances in knowledge regarding mechanisms involved in migraine clearly indicate areas where pharmacologic intervention should be of use in the prevention and treatment of the headache. Familiarity with the pathophysiology of migraine will provide the practitioner with a basis for rational drug therapy.

AN ACCEPTABLE THEORY of the pathophysiology of migraine must account for the hereditary and clinical features of the syndrome, the associated biochemical changes, the observed vasomotor alterations, and the effectiveness of pharmacological intervention. It appears likely that migraineurs have a hereditary vascular instability of the cephalic circulation resulting in increased sensitivity to some vasoactive stimuli, for example serotonin (5-HT) or prostaglandin E₁ (PGE₁). These individuals also have a platelet abnormality manifested by platelet aggregation and release of vasoactive substances upon minimal provocation. PGE₁ appears to play a central role in the pathophysiology of migraine. The platelet abnormality may result in an increased production of this prostaglandin, and the postulated vascular instability causes a dramatically enhanced sensitivity to the effects of PGE₁. Of course, the entire pathophysiological mechanism involved in migraine remains unknown; the following theory is based on current research and clinical observations.

PGE₁ and Migraine

If the actions of PGE₁ are indeed the "cause" of the headache, then intravenous injection of the prostaglandin should mimic the clinical findings seen with migraine. Carlson et al. discovered that intravenous PGE₁ infusion into non-migrainous subjects consistently caused migraine-like headaches, abdominal cramps, and nausea¹. Facial flushing always and headache usually appeared before the abdominal symptoms. This may mean that the vascular effects require a lower concentration of PGE₁ than is necessary to produce intestinal smooth muscle contraction. In one of the subjects, the headache was unilateral and accompanied by visual symptoms. In all of the subjects, symptoms disappeared within 15-30 minutes after end of infusion.

Patients experiencing a migraine headache apparently have both vasoconstriction of the intracranial vasculature and simultaneous vasodilatation of the external carotid vascular bed. PGE₁ has been shown to have similar effects upon the cephalic circulation. Using an electronic flowmeter in monkeys, Welch et al.² observed that immediately following the injection of PGE₁ the external carotid flow increased markedly; this increase was maintained in spite of a fall in mean arterial pressure as the PGE₁ infusion progressed. The internal carotid flow decreased significantly along with a decrease in cerebral perfusion pressure. The percentage change in flow was greater than the percentage change in cerebral perfusion pressure, indicating that there was a functional increase in cerebrovascular resistance. Since such a pressure-flow relationship is characteristic for cerebral vessels at

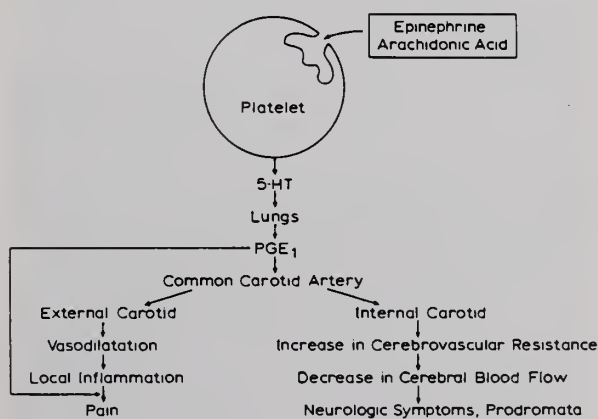


Figure — Pathophysiology of Migraine. Epinephrine and/or arachidonic acid act on platelets to stimulate aggregation and release of vasoactive substances especially 5-HT. The 5-HT released from the platelets travels to the lungs where it stimulates the synthesis and release of PGE₁ into the pulmonary veins. Once the PGE₁ attains the cephalic circulations it acts upon the vascular beds of the migraine patient. This action leads to vasodilatation of the external carotid bed and a decrease in flow through the internal carotid arteries. The vasodilatation leads to a local sterile inflammation, and the prostaglandin sensitizes pain receptors to the noxious chemical stimuli produced by the inflammation.

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perfusion pressures outside the normal autoregulatory range, Welch has concluded that PGE₁ impairs cerebral autoregulation. It would appear that by profoundly dilating the external carotid bed and impairing cerebral autoregulation, PGE₁ may cause redistribution or "steal" of blood away from the internal carotid system. Blood gases did not deviate from normal during the experiment, and all flows returned to pretest levels within 30 minutes after the prostaglandin infusion ceased. Therefore, it appeared that all changes in arterial flows were directly related to the PGE₁ infusion.

Welch's "steal" hypothesis affords an explanation for the frequent observation that cerebral ischemic symptomatology may persist during the headache phase of both classical and common migraine.³ The work of other investigators^{4,5} indicates that a state of generalized cerebral ischemia exists during the prodrome as opposed to the focal vasospasms previously hypothesized. The focal nature of the neurologic deficits that characterize the prodrome may be explained on the basis of the most severe ischemia being in the areas of highest cerebral metabolic activity. It is also possible that PGE₁ produces a concentration-related biphasic response.⁶ Low concentrations of PGE₁ potentiate vasoconstriction, and increased PGE₁ concentrations produce vasodilatation. So if PGE₁ were to rise progressively in an individual, one would expect initial vasoconstriction followed by vasodilatation, as appears to happen in migraine.

That intravenous prostaglandin should give rise to headache may at first seem surprising because in some animal species, more than 95% of PGE₁, E₂, and F_{2alpha} is removed from the blood on one pass through the lungs.⁷ If these findings can be extrapolated to man, it is possible that the headache resulting from intravenous infusion of PGE₁ arises from the actions of minute concentrations which have escaped inactivation in the lung and gained access to the systemic circulation. Alternatively, there may be activation of prostaglandin synthesis by a plasma-borne triggering agent which causes the release of prostaglandins from the lung⁸ (Figure) and/or the synthesis of prostaglandins within the cephalic circulations. Infusing 5-HT or tryptamine into the pulmonary artery of the rat, guinea pig, or dog results in the release of prostaglandins and other pharmacologically active compounds into the pulmonary venous system.^{9,10}

Attempts to directly measure plasma prostaglandins have not demonstrated increased levels in migraine patients. In fact, migraine patients showed no

difference in plasma levels during the pre-headache, headache, and post-headache periods.¹¹ PGE₁ levels in venous and arterial blood collected simultaneously showed no regular pattern of arteriovenous differences in normal subjects or migraine patients.¹¹ These observations are probably not significant because prostaglandins are formed during blood collection and by leukocytes in the collected blood. Therefore, measured blood levels of prostaglandins do not accurately reflect endogenous rates of formation. More reliable information might be obtained by estimation of a 15-keto-dihydro metabolite of the prostaglandin; this metabolite has a longer half-life and is not synthesized within the blood.

Because PGE₁ or some similar substance seems to be the immediate "cause" of migraine prodromata and headache, it is important to discover the stimulus of this PGE₁ production. As mentioned previously, monoamines such as 5-HT and tryptamine elicit the synthesis and secretion of prostaglandins. Introduction of 5-HT or tryptamine into the pulmonary arteries caused the release of vasoactive agents including prostaglandins and thromboxanes into the pulmonary veins.¹⁰ A slight increase in plasma 5-HT has been measured during the migraine prodrome, followed by a fall in plasma 5-HT in the headache phase.¹² Since platelets contain all of the 5-HT present in the blood and release it during aggregation, it is possible that changes in plasma 5-HT in migraine are secondary to alterations in platelet aggregation.

Platelets and 5-HT

Indeed, changes in platelet aggregation have been demonstrated in migraineurs. Platelet adhesiveness to glass beads and platelet aggregation responses to ADP, epinephrine, thrombin, and 5-HT increase during the prodrome.¹³ During the headache phase, however, adhesiveness increased further, but aggregation responses to ADP and epinephrine decreased significantly.¹³ Other investigators¹⁴ discovered a fall in platelet 5-HT level during migraine attacks as compared to headache-free intervals; also they found that the platelet 5-HT concentration in migrainous individuals during headache-free periods was similar to that found in normals.

These alterations of platelet function may logically be caused by some defect within the platelet itself, by some plasma-borne 5-HT releasing factor, or both. Observations of platelet monoamine oxidase have demonstrated lower activities in migraineurs than in normals.¹⁵ It was found that platelet monoamine oxidase activities would decrease during the headache

and revert to near normal levels during the attack-free period.¹⁵ Thus, the ingestion of tyramine (in aged cheeses) or phenylethylamine¹⁶ (in cheese, wine, and chocolate) during a period when they will not be adequately degraded because of low monoamine oxidase activity may increase circulating epinephrine which would facilitate platelet aggregation and release. Such a transient enzyme deficit may explain why tyramine and phenylethylamine seem to bring on the headache in some migraineurs.

5-HT Releasing Factor

In order to further test the hypothesis that a 5-HT releasing factor appears in the blood during a migraine attack, and that some platelet abnormality is present in these patients, a series of cross-incubation experiments were performed.¹⁴ When platelets from blood collected during headache-free intervals were incubated with platelet-poor plasma taken from another migrainous patient in attack, the 5-HT content of the platelets diminished by 22%. But, plasma taken in the headache-free period did not result in similar release of 5-HT from the platelets. Moreover, plasma from migraine sufferers in attack did not elicit 5-HT release from platelets of healthy persons. These investigations indicate that a 5-HT releasing factor appears in the plasma during a headache attack, and that it greatly affects the platelets of migraineurs but not healthy normals.

Increased circulating epinephrine may be an important factor in migraine as urinary excretion of its metabolite, vanillylmandelic acid, increases during a migraine attack.¹⁷ Conditions like stress, starvation, and ingestion of tyramine or phenylethylamine, which appear to precipitate attacks also elevate epinephrine levels. Unsaturated free fatty acids, especially arachidonic acid, also stimulate platelet aggregation and 5-HT release. Plasma free fatty acid levels also rise during migrainous episodes.¹¹ So epinephrine and/or an unsaturated fatty acid may be the 5-HT releasing factor present in migraine.

Migraine Pain from Sterile Local Inflammation

The accompanying figure summarizes the preceding discussion of the pathophysiology of migraine. It is important to point out that the PGE₁-mediated vasodilatation of the external carotid circulation increases both the local pulse pressure and the permeability of the capillaries, thus allowing fluid and substances like kinins to leak out into the surrounding tissues. Prostaglandins of the E series, in concentra-

tions likely to be found in such inflammatory exudates, sensitize pain receptors to noxious stimuli like bradykinin.¹⁸

Actions of Anti-migraine Drugs

Virtually all drugs useful in the treatment of migraine inhibit prostaglandin synthesis or actions in one or more ways (see Tables 1 and 2). Some drugs, like the ergot alkaloids, block the secretion of substances (in this case prolactin) which in turn stimulate prostaglandin synthesis. Other drugs, such as methysergide (see Table 2), block receptors activated by stimulators of prostaglandin secretion (in this case 5-HT). Substances, like ergotamine, caffeine, and propranolol, that antagonize the vasodilatory effects or other actions of prostaglandins, are also useful in the

TABLE 1

The Anti-migraine Actions of Two Drugs Commonly Used to Treat Migraine

Ergotamine

Causes vasoconstriction by directly stimulating vascular smooth muscle

Exhibits some 5-HT antagonization

Reduces secretion of prolactin (a stimulator of PG synthesis)

Caffeine

Possesses a constricting action on dilated cranial arteries

TABLE 2

Possible Anti-migraine Actions of Three Drugs Used in Its Prophylaxis

Propranolol^{22,23,24,25}

Vasoconstrictive effect may inhibit vasodilatation of the headache phase

May inhibit arteriolar spasm

Local anesthetic, membrane-stabilizing effect may reduce both the vasodilatation and reduce the edema of inflammation

Anti-anxiety effect may also be of value; it may reduce circulating levels of epinephrine

Methysergide²⁶

Blocks prostaglandin-liberating action of 5-HT in the lung

May block histamine (a vasodilator) by interfering with histamine liberators

Possesses vasoconstrictor properties

Aspirin^{18,19,21}

Inhibits enzymes necessary for prostaglandin synthesis

Inhibits platelet aggregation and platelet release of 5-HT

Interferes with the effects of kinins possibly because of its ability to inhibit prostaglandin synthesis

Has membrane-stabilizing actions

Interferes with the releases or effect of histamine

Inhibits an enzyme necessary for 5-HT synthesis

Is an analgesic

treatment of migraine.

Aspirin has been found to be useful in the prophylaxis of migraine.¹⁹ Aspirin has been shown to interfere with the synthesis of, release of, and actions of prostaglandins in many ways (Table 2). Another non-steroidal anti-inflammatory agent, indomethacin, at a dosage of 75 mg/day, is unsuccessful in preventing migraine;²⁰ like aspirin it inhibits platelet aggregation

and platelet prostaglandin synthesis, but only briefly, while aspirin's inhibition lasts for several days.²¹ The observed effect of aspirin in reducing the frequency of migraine headaches is unlikely to be due to the drug's analgesic action alone, since other minor analgesics like acetaminophen and indomethacin are ineffective in migraine prophylaxis.

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Improving Survival for Low Birth Weight Infants

DANA E. JOHNSON, M.D.* and THEODORE R. THOMPSON, M.D.*

The prognosis of low birth weight infants less than 2500 grams has substantially improved following the development of multidisciplinary specialized perinatal care centers. Early referral of high-risk mothers, improved obstetrical management, stabilization and transport of low birth weight neonates, and the use of betamethasone have all contributed to this improvement.

A review of 359 newborns with respiratory disorders admitted to the Newborn Intensive Care Unit of the University of Minnesota Hospitals between January 1, 1978, and June 30, 1979, revealed that the prognosis for survival in infants greater than 1500 grams is excellent, and that even infants as small as 750 grams have a good chance of survival if delivered in a perinatal center. The study points out the need to deliver optimal care to all mothers in premature labor and their infants. We must insure that those infants who do succumb are truly incapable of extrauterine existence, rather than because someone has not provided optimal care because the infant appeared "too small to live."

THE PROGNOSIS OF low birth weight infants (below 2500 grams birth weight) has substantially improved following the development of multidisciplinary specialized perinatal care.¹⁻¹¹ Their improving prognosis, though, creates dilemmas faced by all physicians involved in maternal and child health care delivery: What is the limit of viability? How does one determine whether an individual premature infant has a reasonable chance to survive?

The intent of this report is to provide physicians involved in the initial care of low birth weight infants with data regarding an infant's prognosis for survival based on current statistics. Hopefully, this information along with our management suggestions, can help to avert the death of potentially viable infants who are considered "too small to live."

Methods

All patients admitted to the Newborn Intensive Care Unit at the University of Minnesota Hospitals during an 18-month period from January 1, 1978, through June 30, 1979, with respiratory distress secondary to respiratory distress syndrome (RDS) or hyaline membrane disease, pneumonia, or transient tachypnea were reviewed. Survival was tabulated according to birth weight. We report our statistics by birth weight

since this figure is much more easily ascertained by medical professionals than gestational age in most crisis situations. In addition, we have concentrated on infants with respiratory disorders (pneumonia, transient tachypnea, and respiratory distress syndrome) since pulmonary maturation and/or pulmonary complications are often the most significant factors in determining the survival of low birth weight infants. These three entities are grouped together because differentiation between these disorders is often

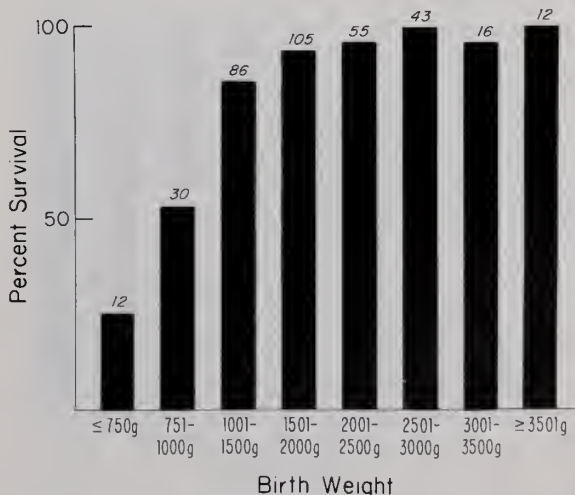


Fig. 1 — Overall Survival Based on Birth Weights of all Infants Admitted to the Newborn Intensive Care Unit with Respiratory Disorders January 1, 1978 — June 30, 1979.

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extremely difficult especially in their early stages.

Results were analyzed using a two-tailed test for the significance of the difference of two proportions comparing two independent samples where:

$$Z = \frac{P1 - P2}{\sqrt{\frac{P1Q2}{n1} + \frac{P2Q2}{n2}}}$$

The null hypothesis was that there was no difference in survival between the two groups.

Results

The data in Figure 1 depicts our overall survival statistics based on the birth weights of 359 children admitted to our Newborn Intensive Care Unit with primary respiratory disorders. This data is further broken down in order to compare the percent survival of infants born at the University of Minnesota Hospitals (UMH) to infants transported from referring hospitals (Figure 2). Figure 3 subdivides the group born at UMH into those who had received two doses of betamethasone given twenty-four hours apart and those who had not received the drug. This figure also compares the survival of these infants to those transported from referring hospitals. The majority of deaths, 81% of which occurred in infants weighing 1500 grams or less, were associated with intraventricular hemorrhage (66%).

Several facts are clear from our data: (1) infants

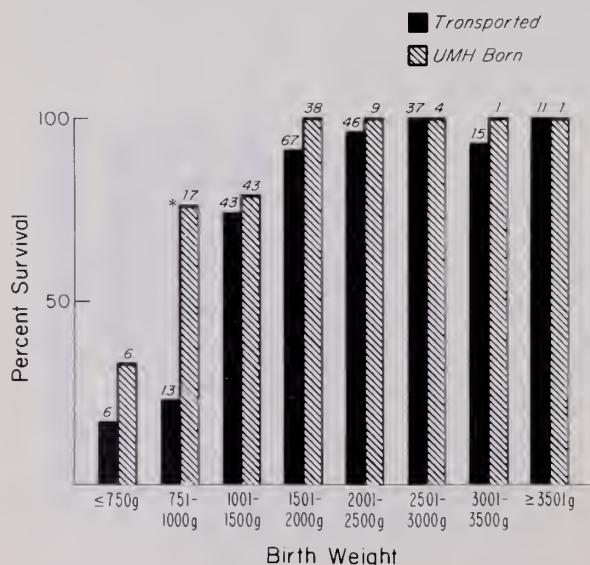


Fig. 2 — Survival of infants with respiratory disorders transported from outside hospitals versus those born at University of Minnesota Hospitals *P < 0.05.

weighing more than 1000 grams, including those with respiratory disease, have an excellent chance of survival (greater than 75%); (2) infants who weigh greater than 1500 grams at birth, have close to 100% chance of survival with or without pulmonary disease; (3) infants who weighed less than 1000 grams at birth have a chance to survive but their chances can be substantially increased by two-to-threefold ($p < 0.05$) if delivery occurred at a perinatal center; (4) if premature labor can be stopped to enable the mother to be treated with two doses of betamethasone 24 hours apart, the survival of infants born at UMH, between 751 and 1500 grams, approaches 100 percent ($p < 0.05$).

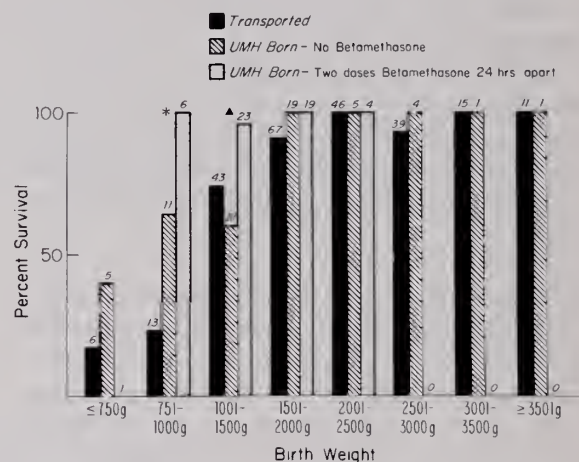


Fig. 3 — Survival of Infants With Respiratory Disorders Transported from Outside Hospitals Versus Those Born at University of Minnesota Hospitals. The Later Group is Broken Down Into Those Who Received Two Doses of Betamethasone Prior to Delivery *p < 0.05 for all Three Groups. ▲ p < 0.05 for the Betamethasone Treated Group.

Discussion

Optimal care for very low birth weight newborns depends not only on techniques and equipment, but also on the attitudes of the professional staff.¹² The improving prognosis of low birth weight infants, comes not only from technological sophistication, but from the willingness of medical personnel to attempt to save extremely small premature infants.

The steadily improving prognosis of extremely small infants causes our continuing confrontation with the problem of determination of viability. Not only are infants of less than 1000 grams living, but the great majority of these children (70-78%) have been found to be developing normally.¹³⁻¹⁵ The improved neurological status is seen especially if there is willingness to discontinue support when major complications develop in extremely small infants which

will cause severe handicaps, e.g., intraventricular hemorrhage.¹³

The question of viability is a difficult issue to confront, since it is obviously different for each infant. At about 23-24 weeks of gestation, the lungs have matured sufficiently both anatomically and physiologically to theoretically allow extrauterine survival.¹⁶ In actuality, extremely few of the infants born at this gestational age survive longer than a few days. In contrast, infants born at 28 weeks gestation or weighing 900-1200 grams have a very good prognosis for intact survival. The period between 24 and 28 weeks of gestation is indeed critical in determining an infant's survival.

Unfortunately, our ability to predict the correct gestational age or weight of an infant prior to and even shortly after delivery by using data from ultrasound, the date of the last menstrual period, fundal height, and newborn physical examination, are usually only accurate within two weeks.^{11,17} In the interval between 24-28 weeks, an additional two weeks of intrauterine life may truly determine whether an infant will survive. Further complicating the problem is that medical personnel often feel obliged to make the decision on whether to vigorously resuscitate a newborn based on the rapid assessment of an infant's size and gestational age in the delivery room. In such an acute situation, underestimation of both these parameters could result in irreversible deterioration of a potentially viable child.

Based on the improving prognosis for infants of under 1500 grams birth weight, we would presently recommend the following management of threatened premature delivery. We emphasize that these are only recommendations and these recommendations are based on our present data. Each particular clinical situation must be individually evaluated.

(1) If at all possible, refer the mother to a perinatal center. Maternal transport using ground or air ambulance can be arranged through most major perinatal centers and has repeatedly been shown to be the ideal method of infant transport.¹⁸⁻²⁰

(2) In the event that maternal and/or fetal factors prevent maternal transport, personnel trained in newborn resuscitation should attend the delivery of the infant.

(3) If time permits neither of the above to occur, we recommend that the following procedures be undertaken. All infants considered to be greater than 1000 grams and/or greater than 27 weeks gestation should be vigorously resuscitated following delivery. The chance of survival and normal development of these

infants, even those with severe respiratory disease, is excellent.

Infants who are thought to weigh less than 1000 grams or be less than 28 weeks gestation should be considered potentially viable. These infants should be supported until the gestation and degree of pulmonary maturation can be determined. Such infants should be delivered in the gentlest manner possible and resuscitated in the delivery room using the same procedures used on larger infants. Special care should be taken to prevent or promptly detect and correct the 5Hs: hypothermia hypotension, hypoglycemia, hypoxia, hypercarbia. The resuscitation team should minimize extra handling of the infant, and pay particular attention to the maintenance of the infant's temperature, since hypothermia and physical stress can directly diminish the extremely small infant's chance of survival. The appropriate length and degree of resuscitation will always be dependent on many factors in infants who are born near the limits of viability. Personnel responsible for resuscitation should note that often these infants respond quickly to initial assistance in establishing ventilation. Conversely, prolonged bradycardia and apnea are grave prognostic signs in this group of extremely small infants.

Following stabilization, these infants should be maintained in a neutral thermal environment and be given enough oxygen to prevent cyanosis. The infants should be weighed and measured, and a rough gestational age determined by examination.^{21,22} An RDS or Downes' score²³ should be calculated from the infant's degree of respiratory distress and a chest Xray should be obtained. Finally, a determination of the serum glucose concentration, and if possible a venous or, preferably an arterial blood gas is very helpful. The data from these very simple procedures are usually available within 30 to 60 minutes following delivery and can be performed in most hospitals. Information provided will enable the attending physician in consultation with a pediatrician or a neonatologist to stabilize the child and to assess an extremely immature child's chance of survival.

Following assessment and appropriate consultation, the attending physician and the parents can make an informed decision on the next steps to take. Infants thought to be potential survivors can be transported to a newborn intensive care unit for further care. This will include most infants weighing more than 750 grams. Infants who are thought to have an extremely poor chance of survival can be allowed to die peacefully close to home in the company of their parents.

The manner in which we as a profession manage

these tiny infants will never be determined only by medical factors. Extremely premature infants force us to deal with complex ethical, moral, legal and even financial factors.²⁴⁻²⁶ In this situation, a physician must consider both his profession and his humanity.

We cannot assure the survival of all these infants at our present level of sophistication. However, we must prevent complications that may compromise their

tenuous grasp on life. A physician will never be as prophetic as when he predicts the death of any baby from which he withholds support. We must insure that those infants who do succumb are truly incapable of extrauterine existence, rather than because someone has summarily withheld support simply because the infant appeared "too small to live."

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Effect of Partial Lacerations on Canine Flexor Tendons*

RICHARD C. DOBYNS;† WILLIAM C. COONEY, M.D.‡ and MICHAEL B. WOOD M.D.‡

Disagreement exists regarding the need for treatment of an incomplete laceration of the flexor tendons. The deleterious effects of surgical exposure of the tendon's sheath are well documented. However, a critical loss of tensile strength in the tendon body would require treatment regardless of these adverse effects. We investigated the serial loss of tensile strength with varying increments of laceration. Twenty-eight adult mongrel dogs were used from which 189 pairs of tendons were excised and tested. Each pair, the cut tendon and its control, were subjected to a tensile load until failure.

We conclude that a greater than 30 percent laceration of the tendon results in an acute loss of tensile strength. This suggest that such a laceration should at least be managed by avoidance of physiologic tendon stress, possibly by surgical repair.

PARTIAL LACERATION of flexor tendons is a relatively common sequela to penetrating trauma to the hand. The optimal treatment of these injuries is controversial.

Disagreement exists whether management should include surgical repair or non-intervention. Kleinert has advocated primary repair of such injuries, but without laboratory data to support this view.¹⁵ Reynolds, Weeks and Wray, concluded surgical repair leads to a poorer result than non-intervention. Their in vivo study of chicken flexor tendons showed that two to four weeks following primary suture repair, tendon tensile strength at failure was significantly higher when the tendon was left unrepaired. The study did not include any comparison between lacerated and non-lacerated control groups.²⁵

Other authors have suggested that intratendinous suture placement may increase peritendinous adhesions.^{8,14,16,21,26} Matthews, et al. have shown that suture placement, particularly in combination with violation of the tendon sheath, is associated with increased adhesions at the repair site.¹⁹ Potenza stated that formation of adhesions about flexor tendons may present a formidable clinical problem, though a necessary aspect of the normal healing process.^{22,23,24}

It would seem plausible that a critical degree of laceration may sufficiently decrease the tensile strength of a tendon to warrant surgical repair despite known adverse effects of surgical exposure and suture placement. The literature concerning this subject is

scant and to our knowledge has not directly approached this question. It is the purpose of this study, therefore, to determine, in vitro, the tensile strength of canine flexor tendons with varying degrees of laceration. It is anticipated this data may be helpful in determining what degree of partial laceration may warrant the consideration of surgical repair or splint protection.

Methods and Materials

The study initially included evaluation of the flexor tendon cross-sectional area and secondly, a biomechanical analysis of flexor tendon strength under tensile loads.

Anatomic Study

To determine a consistent method for creating a laceration which would involve 30, 60, 75, or 90 percent of the dog flexor tendon cross-sectional area, a preliminary anatomical study was carried out on four dogs (16 paws). Gross and histological evaluation of the tendon cross-sectional area was performed using a graph-pen sonic digitizer. Dog tendons were serially sectioned at one centimeter intervals, embedded in paraffin, and stained with Van Gieson elastin stain. In some of the tendons, photographic enlargements were divided into X and Y coordinates to accurately measure the area of the cross-sections. Differences in the quantity of stain was assessed by comparing the central cord area of the tendon with the peripheral supportive connective tissue.

Biomechanical Studies

Twenty-eight adult mongrel dogs were used. Normal-appearing hind and fore limbs were surgically

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amputated and immediately frozen in sealed plastic bags at -15°C . No specimen was frozen for more than five days. Investigators have shown prolonged freezing will decrease stiffness, but no effect on maximum load was reported.¹⁸ Each limb was thawed in a 40°C water bath for two to three hours before harvesting the tendons.

A total of 195 tendon pairs from 28 dogs were harvested. The paired tendons were from either the dog forepaw (right versus left) or from the hind paw (right versus left), each tendon to be compared with its opposite digit-matched counterpart. With random selection, one tendon had partial laceration while the opposite served as a control. From each paw an eight centimeter segment of flexor digitorum profundus tendons were cut at their distal ends five millimeters proximal to the insertion. To maintain a specimen length of eight centimeters, the proximal cut varied from one to three centimeters proximal to the tendon's entrance into the digital sheath. Each tendon, regardless of the original length, included the entire "zone 2" section within its eight centimeter length (Figure 1).

Following procurement from the dog paw, each tendon was immediately wrapped in gauze soaked in saline, sealed in a plastic bag and placed in a 37°C water bath to maintain a standard high humidity and temperature until testing. Each tendon was tested within two hours after excision.

Tensile stress analysis consisted of linear loading of each tendon at a constant rate of deformation to maximum load. The opposite limb digit matched tendon was similarly loaded and the strength of cut tendon was determined as a percent of the maximum load of the control. The rate of deformation was maintained at 6.6×10^{-2} inch per second while subjected to a tensile ramp junction using the Instron Materials Testing System.^{2,9} A specially designed

corrugated wedge-shaped aluminium clamp was used to secure the tendons during the testing. The clamp was designed such that with increasing tensile load the jaws tightness on the tendon increased. Once fixed between the clamps, a preload of 3-4 kgf was applied. In the experimental group of tendons, a laceration of 30, 60, 75, or 90 percent of the cross-sectional area was performed with a scalpel and magnifier. In all cases, the laceration was carried out at the isthmus of the tendon. This represented the dense narrow portion of the profundus tendon within the digital sheath (Figure 1).

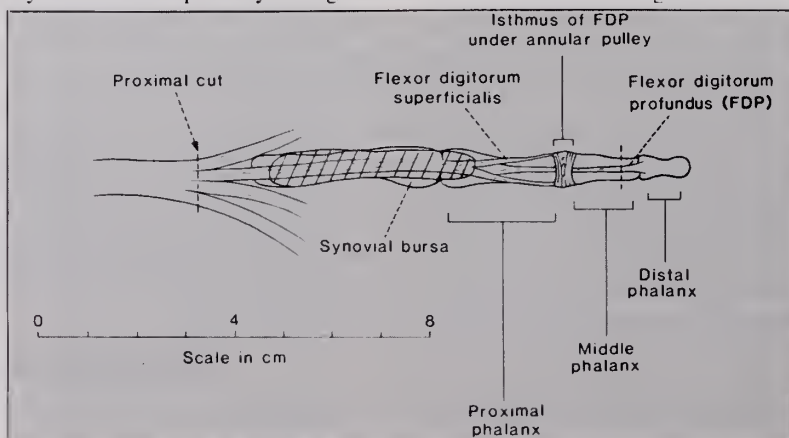
Load versus deformation curves were recorded on a strip chart transducer to determine tensile load at failure. The maximum load that a tendon endured was felt to represent the true failure point rather than the linear load which represented the point at which microfailure was first observed.⁴ If tendon slippage at the clamp sites occurred, the test was considered invalid.

All results were subjected to statistical analysis using a paired student test.³⁰ The same digit-matched pair of every dog was used to define a sample. These were grouped into the following categories: 0% laceration (six dogs — 48 tendon pairs), 30% laceration (six dogs — 48 tendon pairs), 60% laceration (six dogs — 48 tendon pairs), 75% laceration (four dogs — 32 tendon pairs), and 90% laceration (six dogs — 48 tendon pairs). From the total of 224 tendon pairs 35 were eliminated from the review as a result of failure in the tendon testing system.

Results

Anatomic Study

The anatomy of the canine flexor profundus tendons within the digit was noted to be quite consistent, presenting the appearance of two opaque thickened cords that run the length of the tendon separated by a



Figure

thin lucent central zone. Both grossly and histologically, this resulted in the cross-sectioned configuration of a double ellipsoid. As a result of this anatomical alignment, the extent of the cross-sectional laceration did not match the extent of transverse division. We found a 60 percent diameter cut divided 69 percent of the cross-sectional area; a 90 percent diameter cut divided 89 percent cross-sectional area. On the basis of this phase of the study, we determined that a laceration in the mid portion of one of the opaque longitudinal cords approximated a 30 percent division of the tendon cross-sectional area. A laceration through one cord and through the mid-point of the second cord approximated a 75 percent division. Finally, a laceration including all of the tendon, except for a fraction of the lateral margin of one cord, approximated a 90 percent division of the cross-sectional area (Figure 2).

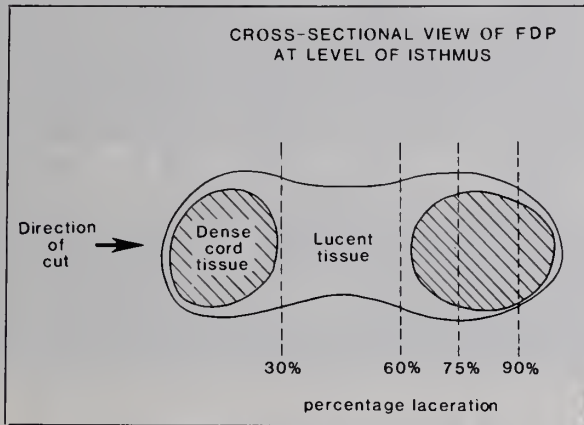


Figure 2

Biomechanical Analysis

All tensile strengths of lacerated tendons were reported as a percentage of the tensile strength of the digit matched control. The 30 percent laceration group showed a six percent loss of tensile strength as compared with the intact control. The 60 percent laceration group showed a loss of forty-four percent, the 75 percent group a loss of fifty-seven percent and the 90 percent group a loss of sixty-eight percent of intact control tensile strength. All valid trials for the 0 percent and 30 percent lacerations failed at the clamp site. All trials at 60, 75, and 90 percent ruptured at the site of the tendon laceration (Table).

Paired statistical analysis failed to demonstrate a significant difference between the control tendons and the 30 percent laceration group. By contrast, the data obtained in the 60, 75, and 90 percent groups was statistically and significantly different from the uninjured control. Those differences noted between the 30 and 60 percent groups and the 60 and 90 percent

groups were significant. Although differences were noted between the 60 and 75 percent groups and the 75 and 90 percent groups, they were of insufficient magnitude to be statistically significant.

Discussion

This study suggests that a partial laceration of the canine flexor tendon beyond 30 percent of its cross-sectional area results in the reduction of tensile strength in a predictable manner. A number of observations were made concerning the mechanical properties of flexor tendons in this experiment. (1) tensile strength is directly proportional to the cross-sectional area, (2) primary fiber bundles are independent of each other and (3) the main opaque lateral cords have more tensile strength than the central lucent tendon connective tissue. This study also suggests that the tendon itself, even when cut, may be the strongest link in the muscle-tendon-bone assembly. Based on these observations, a hypothetical model for partial tendon lacerations may be derived and clinical implications suggested.

Experimental Model

The experimental model of loading flexor tendons has differed among investigators.^{7,10,12,13,15} The rate of loading chosen in this study was a slow rather than fast rate of deformation. In comparing these two we found the slow rate exhibited less standard error with more reproducible results. Noyes, in this study of

TABLE
Laceration vs. Tensile Strength Values

% cut	specimen #	tendon as pairs	tensile strength percentage of control	average form each laceration group
30	1	8	96%	94%
	2	6	80%	
	3	6	99%	
	4	6	95%	
	5	8	100%	
	6	8	99%	
	7	7	60%	
	8	7	71%	
60	9	7	50%	56%
	10	7	67%	
	11	7	43%	
	12	6	65%	
	13	8	50%	
	14	7	47%	
75	15	8	42%	43%
	16	8	40%	
	17	7	38%	
	18	8	27%	
90	19	6	46%	32%
	20	7	28%	
	21	7	38%	
	22	6	29%	

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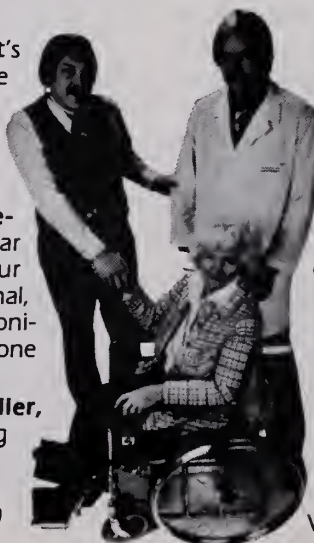
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ligament mechanics, used a similar loading rate not only because of the reproducibility obtained, but because of its similarity to *in vivo* clinical situations.⁸

Difficulties in gripping soft tissue specimens, such as tendons and ligaments, have been reported by several investigators. Methods used ranged from pin clamps for circumferential loading to wedge-jaw clamps, all with variable damage to the microstructure of the specimen.^{7,10,12,13,14} For the purposes of this study a corrugated wedge-jaw clamp was developed and utilized. The corrugated pattern of the clamp would provide an increasing grip on the tendon as the tensile load was increased. This allowed a strong purchase of the tendon with minimal tissue destruction and reduced the problem of tendon slippage. It is acknowledged, however, that the clamp-tendon interface induces a point of stress concentration. This was demonstrated well in the uninjured and the 30 percent lacerated tendons where failure consistently occurred at the clamp site.

Hypothetical Model for Partial Tendon Laceration

To predict potential sites of tendon rupture the clinician must consider several factors. Our model does not consider the effects of systemic or localized disease, avascular necrosis, or multiple trauma nor the effect of the inflammatory repair process. It concerns itself only with the mechanical changes that occur when the tendon body is cut. We observed that a partial laceration of a flexor tendon beyond 30 percent of the cross-sectional area directly diminished tensile strength. We further observed that individual fiber bundles stretch independently of adjacent bundles and that any fiber bundle cut will not participate in load bearing through a system of cross-linkages. Anatomically, tendons have been described as bundles of fibers involving individual fascicles, which are continuous throughout the entire length of the tendon and mechanically isolated from each other by an epitenon sheath and areolar tissue.^{30,31,32}

An additional observation was made that during loading the stretched tendon would thin out through the lucent, central fibers but not through the opaque, large peripheral cords. In fact, if a stretched tendon ruptured first in the lucent tissue, the loss of tensile strength was negligible, whereas a rupture through the opaque lateral cord usually meant a complete rupture of the tendon. This is shown by the 90 percent laceration group in our study. Although only 10 percent of the tendon is intact, this sliver of tissue includes not only 11 percent of the total cross-section of the tendon, but

25 percent of the total cross-sectional area of the lateral opaque cord region. Accordingly, the average tensile strength of this group was approximately 25 percent of the uncut tendon. Thus, the amount of the lateral peripheral cords included in the cut provides a better correlation with the final tensile strength. The degree of cord laceration is the most important factor to consider in predicting the loss of tensile strength of a partially lacerated flexor tendon.

Our final observation in this study is perhaps clinically the most important. An incompletely lacerated flexor tendon may be stronger than the bone-tendon insertion or the musculotendinous junction. McMaster, in his study of subcutaneous ruptures, reported nine experimental ruptures at the gastrocnemius-muscle-tendon junction. The sites of rupture varied between bone avulsion at the os calcis, separation at the muscular origin from the femoral condyles and rupture of the musculotendinous junction. In no cases was rupture within the body of the tendon itself. In our study when tendons were cut one-fourth through their diameter they did not rupture at the point of partial severance. In all trials where the tendons were cut through one-half of their diameter, rupture then occurred at the tendon laceration site.²⁰

Our results are similar to those of McMaster. A 30 percent laceration did not significantly weaken the tendon in comparison to an intact tendon with rupture occurring at the clamp site. By contrast, the 60 percent tendon group was significantly weakened beyond that of the clamp site and failed consistently at the laceration site. Similar results were found with 75 and 90 percent tendon lacerations. These results lead us to conclude that at some point between 30 and 60 percent lacerations, the injury site becomes a point of stress concentration significantly greater than the clamp site.

Mechanically, the clamp site may be compared to the bone insertion or musculotendinous junction. All represent the weakest point of the tendon body due to alteration of the normal tendon architecture. Experimental comparison of tensile strength between the crushed tendon at the clamp, the bone insertion and the myotendinous junction were not carried out. However, McMaster has shown that the musculotendinous origin and bone-tendon insertion is weaker than a crush site in an otherwise intact tendon.

Combining these observations we hypothesized a model for predicting the effect of partial laceration on tensile strength. When the relationship between percent laceration and the percent of original tensile strength is compared, the resultant curve shows two separate regions (Figure 3). The region between no

laceration up to 30 percent shows that artificial weakness of the tendon at the clamp site defines the ultimate tensile strength. The region of the curve corresponding to a 30 percent cut or greater shows that the actual amount of laceration determines the loss of tensile strength. In addition, this region of the curve

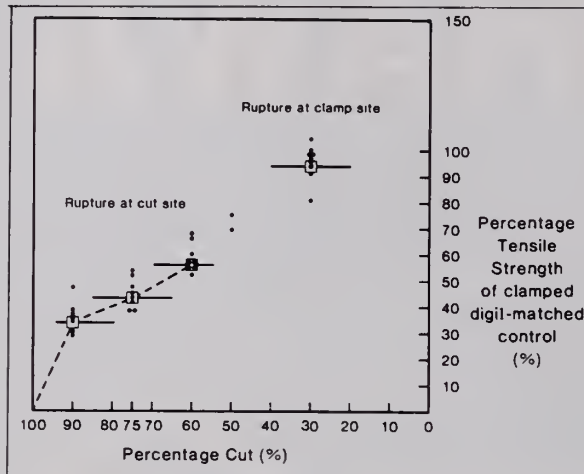


Figure 3

also shows a sharp drop in tensile strength as the degree of laceration approaches 100 percent or complete severance.

In conclusion, on the basis of this investigation it appears that a partial flexor tendon laceration involving in excess of 30 percent of the cross-sectional area is associated with an acute diminution in tensile strength of the tendon. This result suggests that certain clinical situations involving a partial flexor tendon laceration are best managed by avoidance of physiologic tendon stresses or by surgical intervention and repair. This study did not address the influence of the healing process on in vivo partial flexor tendon injuries nor the influence, either beneficial or deleterious, of surgical intervention and intra-tendinous suture placement in such situations. We suggest further investigation considering these factors is warranted.

Acknowledgment

The authors wish to thank Dr. E.Y.S. Chao and the entire Mayo Clinic Biomechanics Laboratory. Special acknowledgment to Roberta Kasman, B.S. for her assistance during materials testing.

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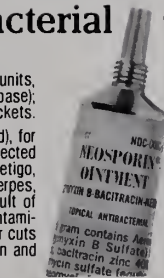
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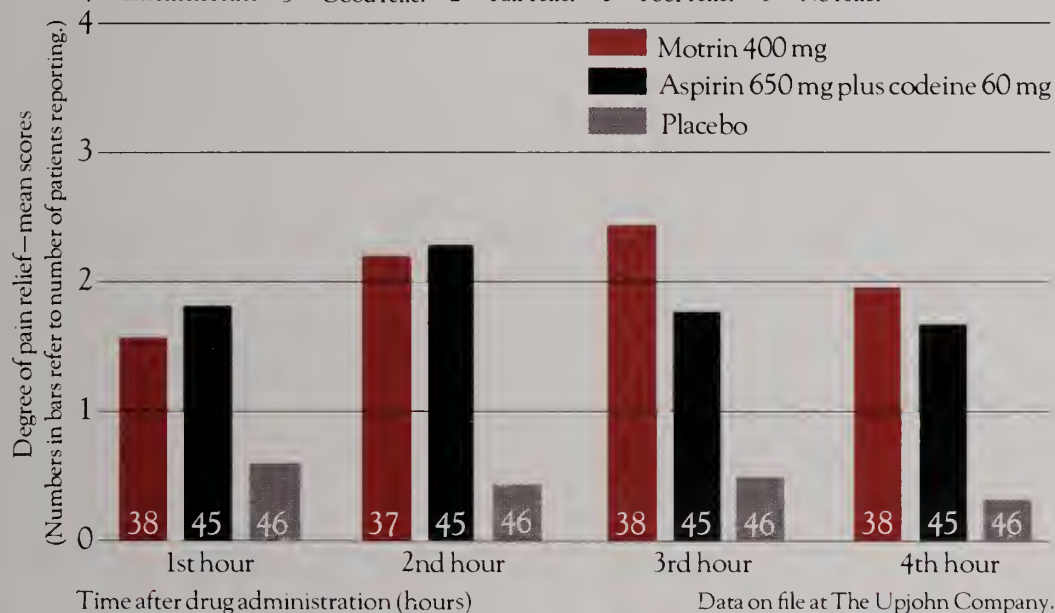
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*Incidence 3% to 9%.

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Howard B. Burchell, M.D.
Minneapolis, Minnesota

Editor's Note: If anyone has knowledge of Dr. Squires' activities and contributions to the medical scene, the Editors and Dr. Burchell would be pleased to learn of these.

Cardiac Hypertrophy, with Valvular Lesions

J. P. SQUIRES, M.D., AUSTIN, MINNESOTA

Minnesota State Medical Society Transactions 12:171, 1880.

To the State Medical Society of the State of Minnesota.

The question is often asked, with more ridicule than respect, "When doctors disagree who shall decide?" A diversity of opinion among medical men touching a given case demonstrates to the intelligent non-professional the fact that some of us are mistaken, and often envelopes the patient and his friends in the thick fogs of doubt, distrust and despair, to the great disparagement of not only the attending physician, but the profession at large; and as our diagnosis and treatment of cases must rest on our knowledge of the pathological conditions of each particular case, — a knowledge which is gleaned for a lifetime, not only from our own practice, but from that of others, — I beg your indulgence while I submit for your consideration and just criticism, a brief but somewhat imperfect report, embodying, however, the main features of the following case, which is doubly interesting to me by reason of the different pathological views and consequent treatment held by others than myself, together with its results, the revelations of an autopsy, and the somewhat singular views which I am informed are still professedly held by some of those who officiated in the management of the case, and I make this report in part at the request of the deceased, to elicit the views of the profession to the end that some knowledge may be gained culminating in good, or at least the avoidance of evil to those similarly situated in the future.

R. I. was forty-one years old; weight, one hundred and eighty to two hundred, thick set and plethoric, and formerly of robust habits. My first knowledge of his sickness was in the fall of 1878, when he had quite a severe run of inflammatory rheumatism, with grave cardiac symptoms, from which he suffered more or less up to his last and fatal attack, which occurred in the latter part of March past, when I was first called and examined the case, as carefully as I could, and diagnosed it as a case of enlargement of the heart with disease of its valves: My prognosis of the case to the friends was of course discouraging — paroxysms of dyspnoea, frequent and distressing, and while there was tumultuous and violent action of the heart, the pulse being from a hundred and thirty to a hundred and forty, was extremely feeble and intermitting, with the skin moist and extremities cold; and on Tuesday, April 27th, Dr. ———— was called from abroad as council, to whom I unwisely but thoroughly committed my diagnostic judgment prior to his examination of the case. The doctor diagnosed the case as one of effusion into the pericardium or pericardial dropsy, suggested treatment for the absorption of the fluid, and advised tapping for its removal in case medication failed. The following day, Wednesday, April 28, the patient being no better, the consulting physician returned and in company with three others re-examined the case, and all pronounced it one of unmistakable pericardial effusion, of which they assured the patient there was a

very large quantity, and they could give at least temporary if not permanent relief in withdrawing the fluid by the operation of tapping the pericardium, which they performed with the comparatively modern instrument known as the aspirator. The needle being introduced through the fifth intercostal space at a point a little anterior to a perpendicular line extending from the left nipple, and the air exhausted from the receiver, a comparatively clear or but slightly turbid serum was first withdrawn, in quantity of from two or three fluid drachms. When the flow ceases, the point and direction of the needle is somewhat changed, when the patient complains of its hurting him, and says to the doctor, "You are going too deep;" then appears a flow at first slightly tinged with blood, then to all appearances clear blood, of which about four ounces was withdrawn, when the flow again ceased. A clot was found to be formed in the tube, and the needle withdrawn.

The physicians present, with the exception of myself, were of the opinion that the withdrawn liquid existed in the pericardial sac as the result of hemorrhage pericarditis; that it was that that so impeded the heart's action and ought therefore to be drawn off, but that the great bulk of the offending accumulation remained. So the instrument was cleansed, a larger needle substituted and passed within the cavity of the chest, and another pumping resorted to, but with no other result than that of great pain to the patient, he averring that the instrument was in his heart, and that he would knock the doctor's head off unless it was instantly withdrawn.

Under so pressing and suggestive an invitation, of course the instrument was removed and the operation abandoned.

I might here state that the patient had a bad spell early in the morning, and took freely of stimulants between six and seven o'clock, and felt quite comfortable from that time until the doctors came at noon, when he took more stimulants before and during the operation, and rested comparatively well until nine or ten in the evening, when his symptoms became worse than at any time before, and the doctor returned on the following day, Thursday, April 29. I informed the patient that his case was a hopeless one and abandoned it. From that time the case grew rapidly worse, and death came to the poor man's relief early on Monday morning, May 3rd, being the fifth day after the operation.

The post-mortem examination revealed the following facts:

The heart was immensely enlarged and flabby,

having somewhat the appearance of a distended pericardium, filled with its effused fluid, so much so that the operator called for the graduate to catch and measure the liquid, but to his astonishment there was none, not even a drop; the heart was enlarged to full twice its natural size, crowding the apex of the lung close under the clavicle; but the base of the organ being fixed by its attachments, the greatest extension from its relative position was in its apex direction. There were two clots of extravasated blood extending over a large portion of the right side of the heart, partly covering both cavities, and extending down to where there were firm adhesions of the pericardium to the heart, which existed in bands and patches over the entire organ, the adhesions being firm and of so great extent there could not have been any accumulation so recently within the pericardium.

The autopsy also showed disease of the aortic and mitral valves admitting free regurgitation, and I am at a loss to see how the needle could have been passed into the sac, being so closely adherent to the heart, without injury to the latter organ, and I solicit your consideration of the case from the fact, I am informed, that some of those who assisted in its management, still strangely hold it to have been a proper one for the operation of tapping, that the four ounces of blood, as well as the two or three drachms of serum withdrawn, was within the pericardial sac prior to the operation, and was withdrawn from that organ, instead of the blood being withdrawn from the heart after the second manipulation of the needle, as the results of the operation and the autopsy alike lead me to suppose. Certainly, being no effusion, it was not a proper case for tapping, and even allowing the possibility of so much blood having got into the pericardial sac by some sort of a pathological hocus-pocus not yet revealed, by what system of professional jugglery was the three drachms of serum drawn off clear from the same cavity where it had been so long and so violently agitated with four ounces of fluid blood. Will some aspiring young man tell me? and while he is about it, tell me if it will pay to perform operations that are of doubtful propriety, in any case, in very doubtful cases. Should we perform doubtful and even experimental operations for a name, without regard to results, further than their reflection on our puny selves? or are our patrons and our fellow practitioners entitled to some considerations of respect, courtesy and honest candor, that ought to distinguish the medical profession and a conscientious class of men engaged in a high and legitimate calling, and above the clap-trap tricks of the professional mountebank.

Rheumatology Corner

Antinuclear Antibodies

JEFF FELT, M.D.*

SINCE THE FIRST description by Miescher and others in 1957, numerous auto-antibodies to various nuclear macromolecules have been described. The fluorescent antinuclear antibody (FANA) is the most widely available screening test for detecting antinuclear antibodies. The FANA is performed by layering the patient's serum over a thinly sliced piece of mammalian tissue which is rich in nuclei. The serum is washed off, and the slide is then treated with fluorescent tagged antihuman IGG. This fluorescent tagged reagent binds to any of the patient's antibody which has bound to the nuclear substrate. The nonbound fluorescent reagent is washed off the slide, and the slide is then viewed under a fluorescent microscope. Four different patterns may be obtained. The Figure shows the four common patterns obtained along with the corresponding antigen responsible for the pattern and the disease associated with the pattern.

The homogenous pattern is the most common and least specific. If present in high titer it is suggestive of systemic lupus. It may be seen in many rheumatic diseases, and is sometimes seen as a false positive in low titer in the older age group. It is the most common pattern seen with drug induced lupus. The homogenous

pattern may sometimes be seen in nonrheumatic diseases such as chronic active hepatitis. The antibodies responsible for the homogenous pattern are the same ones responsible for the L.E. phenomenon.

The peripheral, ring or rim pattern, is produced by antibody to native or double-stranded DNA. There is evidence that antibodies to soluble DNP may produce a rim pattern. The most frequent disease association with this pattern is active systemic lupus. This pattern may be significant, even in a low titer, and may be seen in high titer when active renal disease is present.

A speckled pattern is produced by antibodies to a group of acidic nuclear proteins. These acidic nuclear proteins can be easily extracted with saline from nuclear material and hence have been termed the extractable nuclear antigens, abbreviated ENA. The presence of a speckled pattern indicates antibody to extractable nuclear antigen. If a speckled pattern is obtained, the antibodies in the patient's serum should be further characterized as to their exact nature. Differentiating anti-SM from anti-RNP can often be clinically helpful. Patients with high titer anti-RNP often have a symptom complex that has been termed mixed connective tissue disease by some authors. Patients with anti-SM almost always are found to have

*Rheumatologist practicing in Minneapolis, Minnesota

<u>PATTERN</u>	<u>ANTIBODY TO:</u>	<u>DISEASE ASSOC.</u>
Homogeneous or diffuse 	Insoluble DNP, Histone	SLE, RA, drug-induced LE, other rheumatic diseases
Rim or peripheral 	d-DNA, Soluble DNP	SLE
Speckled 	Acidic Nuclear Proteins: Anti-SM ENA Anti-RNP ENA Anti-SSA Anti-SSB PMI Ma	SLE MCTD Sjogrens PM-DM SLE
Nucleolar 	SCL ₁	PSS

Figure

systemic lupus erythematosus although only 30% of all patients with SLE will evidence the anti-SM antibody. There is data to suggest that patients with anti-SM antibody may in some way be protected from severe kidney disease. The associations of the other extractable nuclear antigens are shown on the Figure.

The nucleolar pattern is due to antibody staining of low molecular weight RNA in nucleoli. This pattern is often present mixed with other patterns and has been associated with scleroderma.

In addition to the fluorescent antinuclear antibody, there is a second commonly available method for detecting antibody to native DNA. This is called the DNA binding test or Farr Technique. It takes advantage of the fact that native DNA is soluble in 50% saturated ammonium sulfate but will precipitate in that solution when it is combined with antibody. Radio-labeled native DNA is mixed with the patient's serum and 50% ammonium sulfate. If antibodies to native DNA are present in the patient's serum, the radio-labeled DNA will be precipitated, and a quantitative estimate of anti-DNA obtained. The reagents and methodology of this DNA binding test vary from lab to lab, but when it is well-standardized and done with pure native DNA, it is a valuable adjunct in the diagnosis of systemic lupus.

A circular native DNA found in a protozoan called *Crithidia lucilii* may be used in an immunofluorescent test to detect native DNA. This test is less sensitive than the Farr technique, but seems to be more specific and is simpler to perform. The more sophisticated clinical laboratories will have either the Farr technique or the *Crithidia* technique available to substantiate the

rim pattern on the antinuclear antibody.

The frequency of the disease association shown in Figure will vary from laboratory to laboratory, and the with the vigor with which the antinuclear antibody is sought. As a rough guide, close to 100% of patients with systemic lupus will have some form of antinuclear antibody detectable. A small group of patients who otherwise have classical systemic lupus have no antinuclear antibody and evidence only a cytoplasmic antibody. Thirty to forty percent of patients with rheumatoid arthritis will manifest a positive antinuclear antibody at some time in their course. Patients with scleroderma tend to have abnormal antinuclear antibodies early in their course when they have more active inflammation. These patients may be positive in 45-60% of the cases. In dermatomyositis, the incidence of positive antinuclear antibodies runs somewhere between 30 and 50%. In the mixed connective tissue disease syndrome, the incidence of positive antinuclear antibodies is 100%. This is partially an artifact of defining the syndrome by the presence of an antibody. Up to 60% of girls with pauciarticular juvenile rheumatoid arthritis have positive antinuclear antibodies. Iridocyclitis seems to be particularly common in these patients.

It is important to apply the diagnostic guidelines given in this discussion in the light of the clinical picture. One must remember that the course of rheumatic disease is often an evolving one. The patient and physician are sometimes best served by a working diagnosis that may be altered in the light of new information.

MMA Resource Group on Rheumatic Diseases Presents

RHEUMATOLOGY SEMINAR IV

February 27-March 6, 1982

- LOCATION: Captiva Island, Florida, South Seas Plantation Resort
 DATES: Depart Twin Cities Airport February 27. Return March 6.
 AUDIENCE: Primary Care Physicians
 CONTENT: Common rheumatologic problems: early diagnoses and the natural course of rheumatic diseases in children and adults, drug management and surgical considerations with a current update of research in rheumatic diseases.
 HOURS: 20 hours, Category I/Prescribed
 FEE: Educational program — \$250
 Tour package — from \$589 (includes round-trip flight, accommodations for seven nights and car rental)
 CONTACT: Department of CME & Program Services, Minnesota Medical Association, Suite 400, 2221 University Avenue SE, Minneapolis, Minnesota 55414, 612/378-1875.

Letters to the Editor

Dear Editor:

We again wish to challenge Dr. Lee Beecher regarding a number of statements in his letter (September 1981*) responding to our letter (August 1981†) of protest to his original article, *A Political Analysis of Minnesota Psychiatrists and Their Methods of Reimbursement*, *Minnesota Medicine*, June 1981.

In our letter we challenged Dr. Beecher to "present the evidence regarding the HMOs towards whom he is making his charge". In his response he generalizes, "There is, indeed, an implication that all HMO programs make an effort to shift mentally ill persons (particularly the chronic mentally ill) out of HMOs." Then he admits this came from an executive of one HMO — not all HMOs. We feel that Dr. Beecher's reference to "all HMO programs" is an irresponsible generalization and we once more deny that it is true at St. Louis Park Medical Center (MedCenter Health Plan).

Dr. Beecher wants to know if the psychiatrists at St. Louis Park Medical Center are being reimbursed "in a different way" for HMO and fee for service patients, seeming to imply that there is something unusual or underhanded in our reimbursement for services rendered to HMO patients. Why doesn't he directly ask us, if he has such a concern, rather than to make such a suggestion in *Minnesota Medicine*?

He also suggests that it would "be most helpful if HMOs provided data which could be used by consumers in industry, to compare the benefit packages, and compare their benefit packages with fee for service plans". That data is obviously provided to industry, along with indemnity insurance benefits, so that a rational choice can be made by the employee and family. Does Dr. Beecher think that an employee makes a choice of health insurance without such data?

He seems to imply that we are not "cooperating" to make public "benefit packages, provider qualifications and reimbursement schedules". Information on benefit packages has always been available to any employer, the State Health Department, and the employee and family members who are considering joining the HMO. A good deal of data on other issues, which he seeks in a "comparative analysis", regarding the mental health care of HMO patients at St. Louis Park Medical Center has been published (*Shifting From External to Internal Provision of Mental Health Services in a Health Maintenance Organization*) in *Hospital and Community Psychiatry*, Volume 32, number 1, January 1981, pages 31-35. We would be most happy to compare "provider qualification and reimbursement schedules" with other HMO and fee for service mental health professionals in an appropriate forum — perhaps the Minnesota Psychiatric Society, a district branch of the American Psychiatric Association, rather than to continue this debate in *Minnesota Medicine*.

*Page 568
†Page 473.

Richard O. Anderson, M.D.
Minneapolis
Barry L. Cosens, M.D.
Minneapolis

Frederick W. Engstrom, M.D.
Minneapolis
Michael J. Feldman, M.D.
Minneapolis

Dear Editor:

"Challenge" from St. Louis Park Medical Center Psychiatrists

I do feel that there are substantive issues concerning HMO practice and psychiatry which need to be clarified and debated. The letter section of *Minnesota Medicine* may be one such appropriate forum for such discussion.

Below is a table of advertised psychiatric and mental health benefits in local HMOs and the PHP-IPA. To my knowledge, these meet existing statutory requirements for minimum benefit structures.

If we use only this data to compare available psychiatric treatment in various plans, we will overlook the actual utilization figures for "mental health" benefits in various capitation programs. Also, we will not know if the services provided are provided by psychiatrists (or other "mental health" providers), the illnesses treated, and the incentives for the psychiatrists or other providers to provide the services. We will need to obtain a tabulation of actual dollar amounts expended per mental health patient served per time, payment for treatment by provider type, patient's diagnostic category, and the nature of service provided.

The American Psychiatric Association has established as top priority the formation of a clearing house for psychiatric benefits provided in various insurance plans. Psychiatric care should not be rationed disproportionately compared to other medical benefits actually received in any insurance plan.

The capitation concept (HMO) implies that providers will have an incentive to limit and control the costs of medical care provided. Therefore, the actual care provided will need to be carefully defined in a given plan and population so that potential consumers (customers) know what to expect with a given HMO.

Finally, it is my intention to avoid ad hominem arguments in this important discussion. Nonetheless, the nature of physician reimbursement (schedules of payment, bonuses, etc.) is an important consideration in examining the motivation for providers to provide treatment to patients. I can assure the St. Louis Park Medical Center psychiatrists that I know of nothing unusual or underhanded in their reimbursement arrangements.

Lee Beecher, M.D.
Minneapolis, Minnesota

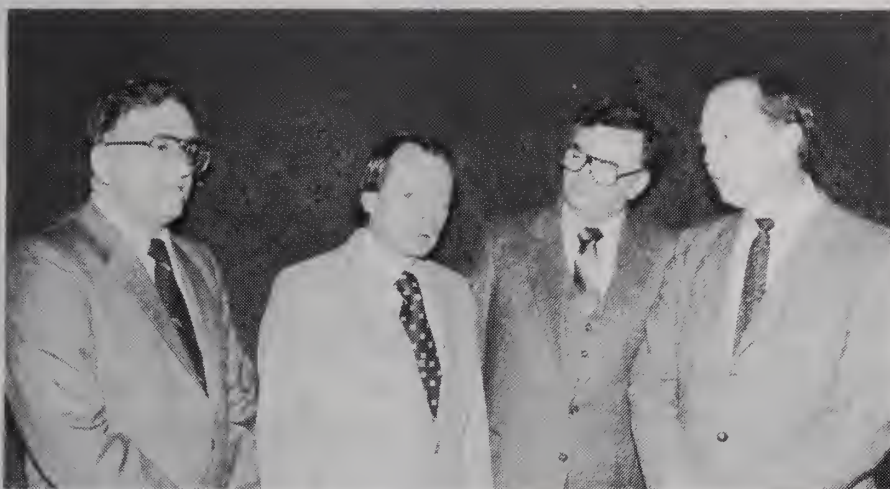
HMO Benefits for Mental Health and Chemical Dependency

Benefits May Vary with Contracts for Group Coverage.

		INPATIENT		OP	OUTPATIENT	
		# of days per year	co- paymnt		# visits per year 30 days	co- paymnt
HMO MINNESOTA:	MH	73	20%		30	20%
	CD	73	20%		30	20%
		ECT paid in full Drugs paid in full Psych Testing Pd in full				
GROUP HEALTH PLAN, INC. (Group and individual policies available — group benefits may vary	MH	30	25%		20 visits	\$10 per visit
	CD	36	25%		20 grp therapy	\$ 5 per visit
MED CENTER HEALTH PLAN (Group only)	MH	60	20%		30	\$10 per visit
	CD	75	20%			
PHYSICIANS HEALTH PLAN (Metro Clinic of Counseling)	MH	73	20%		30	\$10 per visit
	CD	73	20%		30	\$10 per visit
SHARE, INC. (Metro Clinic of Counseling) Federally qualified and state certified	MH	30	\$15 per day		20	\$ 5 per visit
	CD	73	15 per day		20	\$ 5 per visit
COORDINATED HEALTH CARE, INC.: MH & CD		73	(per day)		25	(per visit)
		(day 1-25)	\$15		(1-5)	full payment
NICOLLET-EITEL HEALTH PLAN:		(day 25-73)	25		(6-15)	\$15
					(16-25)	25
	MH	30	(per day) \$20		50	(per visit) \$10 (indiv)
		(per period of care)				5 (group) 15 (family)
	CD	73	\$250 per admission		—	\$100 per program

Minnesota Medical Association

Meeting with Joseph F. Boyle, M.D.,
Chairman of the AMA Board of Trustees
November 11, 1981



(Left to right) James F. Knapp, M.D., Chairman of MMA Board of Trustees; Joseph F. Boyle, M.D., Chairman of AMA Board of Trustees; Robert T. Kelly, M.D., AMA Trustee; and Charles J. McCarthy, M.D., President of Minnesota Medical Association. (Photo by Roger Johnson)



Dr. Boyle addressing physicians at a breakfast meeting held November 11, 1981 at the Registry Hotel, Minneapolis. (Photo by Roger Johnson)

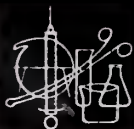


Dr. Joseph Boyle discussing competition with Dr. Richard L. Reece, Editor-in-Chief of MINNESOTA MEDICINE. (Photo by Roger Johnson)

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Minnesota Medical Association

1982 MMA ANNUAL MEETING

May 26-28, 1982

(Wednesday-Friday)

Radisson South Hotel, Bloomington

Highlights of the Month

Each month this page will highlight a different aspect of the 1982 Scientific Program and one or more of the special events planned in conjunction with the Annual Meeting.

Scientific Program: Thursday and Friday, May 27-28

The 1982 Scientific Program will present the topic of cancer from three different perspectives.

Recent developments and a multispecialty scope make breast cancer a relevant topic for many physicians. "Breast Cancer Today" will be the topic for a Thursday morning plenary session sponsored by the Minnesota Division of the American Cancer Society. B. J. Kenney, M.D., well known for his research and clinical experience with breast cancer at the University of Minnesota, will make this presentation.

As every physician knows, the "Psychosocial Problems of Cancer Patients and Their Families" are especially acute. Alexander A. Levitan, M.D., Minneapolis, has designed a program to help the non-oncologist provide effective support and guidance to the cancer patient and his/her family. This breakout session will be held Thursday afternoon.

The special expertise of Athanasios Theologides, M.D., and others from the University of Minnesota and Mayo Clinic in the field of "Nutrition in Cancer Patients" will be shared during a Friday afternoon breakout session. Dr. Theologides and his multidisciplinary faculty will discuss a balanced view of nutritional management in the cancer patient.

Other Planned Topics: The Pharmacological Aspects of Hypertension — Complications in the Management of Hypertension — Hypertension and Heart Disease — Computers and the Practice of Medicine (including a demonstration workshop) — Assessing the Quality of Ambulatory Care — The Effective Use of Clinical Resources — Management and Prevention of Sports Injuries — Pediatric and Adolescent Sports Medicine — Casting and Splinting Workshop — Neonatal Resuscitation — Blood Banking — CPR — Update in Diagnosis and Treatment of Chemical Dependencies — Sleep Disorders — A "Mock Trial".

Special Events: 'Take Me out to the Ball Game' — Wednesday Evening, May 26, 1982

Been to the Domed Stadium yet? Here's your chance to see the Minnesota Twins play in the new stadium and not have to look for a parking space. A block of seats at first base has been reserved for the Twins vs. Cleveland Indians game. Baseball fans (and those just plain curious about the domed stadium) will have the benefit of round-trip, chartered bus transportation between the Radisson South and the stadium. Check the Annual Meeting brochure (to be mailed in early March) for information on how to order tickets.

Future Announcements in MINNESOTA MEDICINE and NEWSPAGE to include more highlights of the 1982 Annual Meeting.

For further information on the Annual Meeting, contact:

Department of CME & Program Services
Suite 400, 2221 University Avenue SE
Minneapolis, Minnesota 55414
612/378-1875

Social Services

Adolescent Pregnancy and Social Services

Many pregnant adolescents or single parents may find the comprehensive services provided by Minnesota and Twin City social agencies very useful to them and their families. There are many educational, vocational, financial, housing, and other resources available which may be helpful in planning ahead or in arriving at decisions for themselves and the child.

In addition, there is counseling assistance which will provide opportunities for the adolescent to mature and to consider seriously all alternatives open. The problem of an unplanned pregnancy with an adolescent is a very complicated one, involving the parents and other family members. Counseling may assist in strengthening the family and working out the family difficulties which may be expressed by the adolescent.

In the state of Minnesota every county welfare department (Department of Human Services) is mandated by Minnesota law to target this adolescent group for the offer and provision of services. However, a county welfare department may only provide some financial assistance.

The following three privately funded social services agencies in the Twin Cities and in the state can provide comprehensive services, — planning, counseling, and referral to specialized resources.

Catholic Social Services

Minneapolis Area Office

404 South 8th Street

Minneapolis, Minnesota 55404

(612) 340-7500

Seton Centers — 2414 South 7th Street

Minneapolis, Minnesota 55454

(612) 338-2229, ext. 601

Cabrini Residence

Box 829

Winona, Minnesota 55987

(507) 454-5489

St. Paul Area Office

215 Old 6th Street

St. Paul, Minnesota 55102

(612) 222-3001

57 W. 10th Street

St. Paul, Minnesota 55102

(612) 224-4805

Caritas Family Service

1726 7th Avenue South

St. Cloud, Minnesota 56301

Children's Home Society of Minnesota

2230 Como Avenue

St. Paul, Minnesota 55108

(612) 646-6393

811 LaSalle Avenue

Minneapolis, Minnesota

(612) 646-6393

Lutheran Social Services

219 North 6th Avenue East

Duluth, Minnesota 55805

(218) 727-8169

1201 Payne Avenue

St. Paul, Minnesota 55101

(612) 774-9507

2512 First Avenue

Hibbing, Minnesota 55746

(218) 263-5433

Professional Center

Suite 2

Holiday Mall

Moorhead, Minnesota 56560

(218) 236-1494

Box 3144

Mankato, Minnesota 56001

(507) 625-7660

414 West Becker Avenue

Willmar, Minnesota 56201

(612) 235-5411

2414 Park Avenue

Minneapolis, Minnesota 55404

(612) 871-0221

P.O. Box 8

Brainerd, Minnesota 56401

(218) 829-7126

406 4th Street SW

Rochester, Minnesota 55901

(507) 289-0725

Minnesota Medical Association

from

Division of Socio-Economic Affairs

Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Charles W. Wiger, Director, Department of Legislative Affairs

Department of Health Planning

MMA Ad Hoc Committee Responds to Governor's Task Force on Health

The MMA Ad Hoc Committee on Health Care Competition and Regulation submitted written comments to Governor Albert H. Quie on the Report of the Governor's Task Force on Health Care. Governor Quie's Task Force was charged to:

- recommend cost management options to contain Fiscal Year '83 spending to \$282 million.
- project the financial impact of all recommendations for Fiscal Year '83 and the '84-'85 Biennium.
- recommend options for improving the adequacy of publicly funded health care programs.

The Governor's Task Force recommended modifications in seven areas. The MMA Ad Hoc Committee commented on the four areas of most interest to the physician community: long term care, acute care, drugs, and administration.

While the MMA Ad Hoc Committee was sensitive to the gravity of the budgetary situation and the difficult job which the Governor's Task Force had been assigned, they were nonetheless critical about many Task Force recommendations. Some areas of comment are summarized below.

Long Term Care

The MMA strongly opposed recommendations to eliminate the nursing home Medical Directors and nursing home Utilization Review Committees. The MMA felt that these recommendations would significantly reduce the quality of care for nursing home residents.

Acute Care

The Governor's Task Force recommended that a case management system be implemented to control the utilization of all Medical Assistance recipients. While the MMA might support some type of case management system to ensure that recipients do not seek unnecessary services or services at an inappropriate health facility, the MMA does not support the recommendations as currently written. The case management concept was originally submitted to the Task Force by one of its members, Richard J. Frey, M.D. of Minneapolis. However, the recommendations in the report do not capture the spirit of the proposal submitted by Dr. Frey. In changes made by the Task Force and its staff, the report indicates that the primary care physician "would not have control over services not provided or ordered by physicians (e.g., dental service, nurse midwife service, chiropractic services)." As stated, the MMA feels that this recommendation would hold the physician liable for the patient's utilization but would limit the physician's ability to ensure that utilization is appropriate. The case manager system would be acceptable only if the primary care physician had complete charge of the case, including the sole right to decide when referrals to other physicians and other health professionals are necessary.

Drugs

In the area of drugs, the Governor's Task Force recommended: the mandatory use of generic drugs unless a physician specifically indicated against it; a limit of three prescriptions per month per recipient; severe restrictions on payments for over-the-counter drugs; and no reimbursement for drugs listed by the F.D.A. as "ineffective" or "possibly effective".

The MMA opposed these Task Force recommendations on drugs because they severely hinder the physician's right to practice medicine.

DIVISION OF SOCIO-ECONOMICS

Administration

The Governor's Task Force recommended that the Commissioner of the Department of Public Welfare be granted "legislative authority to adjust reimbursement to providers and services to recipients when health care expenditures are expected to exceed the designated appropriation." The MMA holds that such a recommendation would be unconstitutional in that it would violate Article III of the Constitution of the State of Minnesota. Another recommendation in this area would allow the Minnesota Administrative Procedures Act to be amended "to facilitate emergency decision-making to prevent spending beyond appropriations in welfare entitlement programs . . ." The MMA notes that this recommendation sacrifices the citizen's basic Bill of Rights due process principles to accommodate a Commissioner's failure to plan and budget appropriately. The MMA's Ad Hoc Committee stated that this recommendation was unacceptable to the MMA, and more importantly, should be unacceptable to every citizen in Minnesota.

The Ad Hoc Committee pledged the support of the MMA in continuing to explore alternatives to the existing health care system and to identify long-range health policy goals.

The Governor's Task Force Report and the complete MMA response are available from the MMA Departments of Medical Services and Research and Health Planning.

Department of Legislative Affairs

Long Warm-up Precedes 1982 Legislature

Physicians Escape Budget Ax

Minnesota legislators returned to St. Paul December 1, 1981 for a five week warm-up to the January 12 start of the 1982 legislative session. Governor Quie called the record setting third special session to address the \$798 million deficit in Minnesota governmental finances.

Philosophical political differences created several impasses between the DFL controlled legislature and IR Governor Quie. Physicians as property owners and taxpayers join other Minnesotans in shouldering increased property, sales and income taxes as legislators refused to cut government spending. One bright spot resulted from legislative refusal to further cut physician Medicaid payments.

Hospital Construction Feasibility Studied

The House Education Division of Appropriations listened to University Hospital speakers explain the continued feasibility of a \$190 million, 525 bed replacement hospital. While still on track with groundbreaking scheduled for Spring 1982 and completion in 1986, recent changes in cost of financing construction prompted University Hospital Board of Governors to restudy the size and cost of the project.

Speakers from groups such as InterStudy, the Minnesota Coalition on Health Care Costs, and the Citizen's League challenged University assumptions on patient days per 1,000 population and the effect of increased specialization in private practice on the University Hospital caseload. John Burns, M.D., President-elect, Ramsey County Medical Society, speaking for himself suggested a task force to study the size of the facility. Dr. Burns also suggested the University consider using excess bed capacity in existing area hospitals to meet University needs.

Revised bond rate and patient population data presented to University Hospital Board of Governors prompted the legislative review. University officials will continue to study the ability of patient revenues to pay for the new hospital debt. Meanwhile construction plans remain on schedule with contracts to be let on January 15, 1982, and a bond sale planned for February 1982.

Department of Medical Services and Research

The national Governor's Association sponsored a conference on Medicaid and primary care networks/case management systems in New Orleans, Louisiana on December 2, 1981. The conference was convened in the wake of assurances from the Reagan Administration that states would be allowed more freedom to design Medicaid programs customized to each state's particular needs.

The Minnesota Department of Public Welfare and the Minnesota Medical Association were represented at the conference. Both organizations have an interest in the subject since the idea was recently espoused in the Acute Care Recommendation #1 of the Governor's Task Force on Health Care Report. The idea of developing a primary care network/case manager system for Minnesota's Medicaid population is one of the few recommendations from the Governor's Task Force that could be supported by the MMA if the MMA could participate in the development of specific programs details.

The existing primary care networks (PCNs) in the United States are few in number and can be distinguished from related prepaid group practices and independent practice associations. Bruce Spitz, a private consultant to the National Governor's Conference and Director of the Medicaid Consulting Consortium, offers a definition of PCNs in his paper on "Primary Care Networks and Medicaid" which was presented at the conference. He writes:

In general, a primary care network (PCN) has three characteristics: (1) it consists of primary care physicians disbursed throughout the community in solo or group practices; (2) patients are enrolled in the PCN and assigned to a single primary care physician [sic]; and (3) the network increases control that the primary care physician has over the total medical care received by the patient.

The conference included presentations from four organizations identified with the private sector: Safeco's United Healthcare, Wisconsin Physician Services, Group Health of Northeast Ohio, and Middle Georgia Medicalcare. In addition, the experiences of primary care networks serving indigent populations were discussed by representatives from: Group Health of Northeast Ohio-Department of Family Medicine-University Hospitals of Cleveland, Multicare of Multnomah County, Oregon, and Massachusetts Medicaid Care Management Program. Finally, speakers from Maryland's Department of Health and Hygiene, Michigan's Department of Social Services, and the Michigan State Medical Society explained the plans they are making to implement primary care networks for their Medicaid populations.

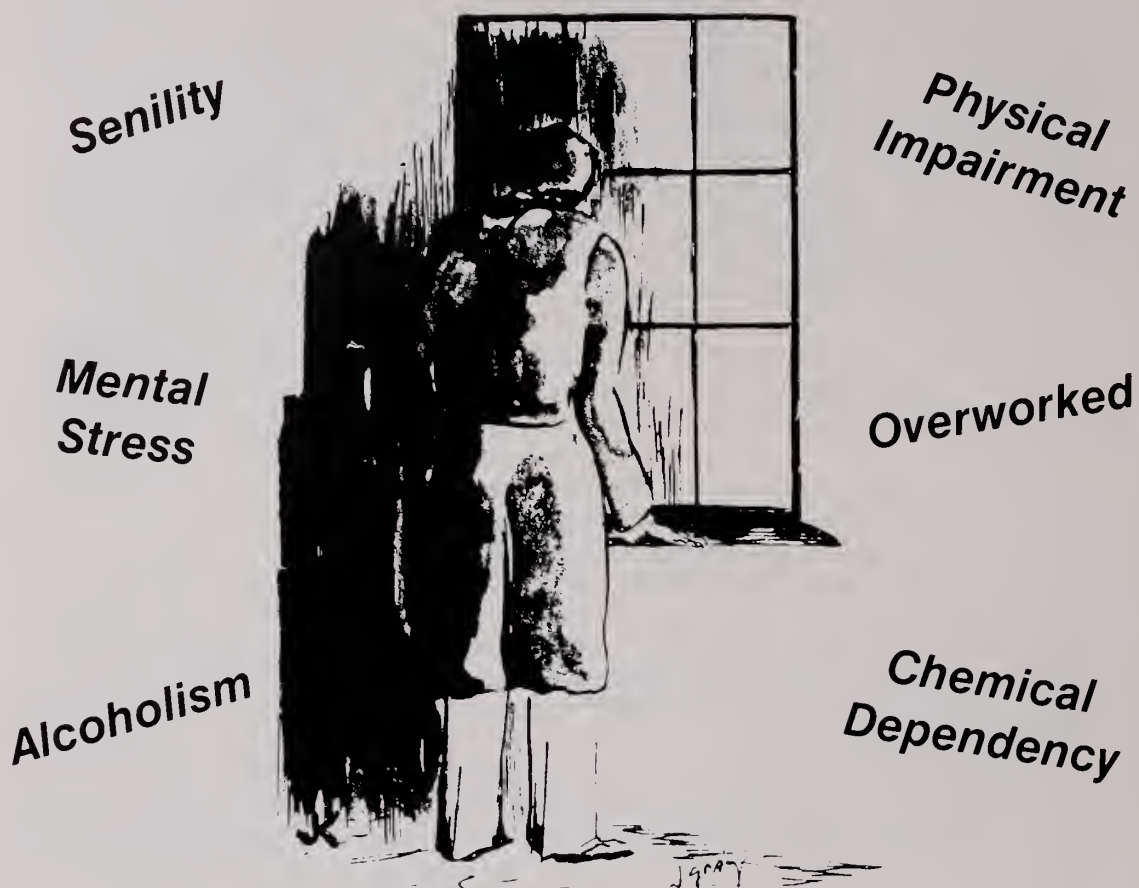
None of the active plans described were identical. Indeed, the hallmark of the collective plans was diversity. The enrollee populations ranged from 6,000 Medicaid recipients to 182,000 non-indigent enrollees. Some of the plans retain a variation of fee-for-service reimbursement with little risk involved for the physician; while other plans pay on a capitation basis and place the primary care physician at full risk for all services including those provided by the referral specialists.

The plans are all relatively new delivery system endeavors with the Health Maintenance Plan of Wisconsin Physician Service being the oldest plan dating back to October 1970. Some of the plans discussed at the conference were marketed only to people in rural areas; while other plans allowed for limited marketing in metropolitan locales.

The characteristics common to the most successful plans include: mandatory risk sharing on the part of the provider, strict control of specialist services by the primary care physician, high member enrollment in rural areas and small cities rather than metropolitan areas, development of a data retrieval system which is constantly monitoring costs and utilization of services, and frequent communications from the administrators or medical directors of the plans to the participating primary care physicians for peer and self-evaluation of practice patterns.

In the coming days and weeks, Michigan's Physician's Primary Sponsor Plan should interest the MMA and the Minnesota Department of Public Welfare. The plan was developed by the Michigan State Medical Society and the Michigan Association of Osteopathic Physicians and Surgeons in conjunction with the Michigan Department of Social Services. It will be marketed to Michigan's vast Medicaid population. The program details were developed through the joint efforts of Michigan's Medical Society and state welfare department. Who knows, perhaps, Michigan's primary sponsor plan will be a prototype for a joint project by the MMA and the Minnesota Department of Public Welfare. A watchful eye to our neighbors to the East is advised.

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Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

January, 1982

13-23 Winter Seminar; Minnesota Academy of Family Physicians; Maui, Hawaii; CONTACT Chari Konerza, Minn. Acad. of Family Physicians; Suite 426, 2221 University Ave. SE, Mpls., MN 55414, 612/623-9559.

18-20 Basic Cardiac Life Support; North Memorial Med. Ctr., Mpls.; North Memorial; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

20 Cardiovascular Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesabi Clinic, Hibbing, MN 55746, 218/262-3441.

23 Stroke Prevention Update; St. Paul-Ramsey Medical Center; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

29 & 30 Interhospital Cardiovascular Conf.; Hennepin County Medical Center; Metropolitan Medical Center; CONTACT Robert Hammerstrom, M.D., 900 S. 8th St., Mpls., MN 55404, 612/347-4439.

29-30 Acute Pediatric Care; St. Louis Park Medical Center Research Foundation; Bloomington Marriott Hotel; CONTACT Elaine Anderson, Assistant Administrator, SLPAC, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

29-30 Advanced Cardiac Life Support; Mercy Medical Center; Unity Medical Center, Fridley; CONTACT Gene Arel, Mercy Medical Center, 612/427-2200, Ext. 2365.

30 Child Abuse and Neglect Workshops; U of M Extension Classes, St. Paul; CONTACT Dept. of Extension Classes, 202 Westbrook Hall, 77 Pleasant St. S.E., Mpls., MN 55455, 612/376-5049.

February, 1982

3-4 Topics in Geriatric Medicine; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St., S.E., Mpls., MN 55455, 612/373-8012.

4-5 Advanced Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

6-13 TRAVEL MEDICAL SEMINAR; NORTH CENTRAL MEDICAL CONFERENCE; West Indies (combined with cruise); CONTACT North Central Medical Conference, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

13 Perinatal Conference; St. Mary's Hospital; Radisson Duluth Hotel; CONTACT Karen Alseth, St. Mary's Hospital, 407 E. 3rd St., Duluth, MN 55805, 218/726-4430.

15 & 17 Basic Cardiac Life Support Courses; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

15-22 Minnesota Psychiatric Society; Mexico City; CONTACT Mrs. Patricia Rowe, 1770 Colvin Ave., St. Paul, MN 55116, 612/698-1971.

16 Dermatology; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT Mark Muesing, M.D., 303 Kingwood Brainerd, MN 56401, 218/829-3568.

16 Pediatrics; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesabi Clinic, Hibbing, MN 55746, 218/262-3441.

16-March 2 TRAVEL MEDICAL SEMINAR; NORTH CENTRAL MEDICAL CONFERENCE; South America (tour package); CONTACT North Central Medical Conference, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

25-26 ENT Problems in Your Office; U of M Medical School; Sheraton Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-March 6 RHEUMATOLOGY SEMINAR IV; MINNESOTA MEDICAL ASSOCIATION; Captiva Island, Florida (tour package); CONTACT Teresa Rogstad, MMA, Suite 400, 2221 University Ave. SE, Mpls., MN 55414, 612/378-1875.

March, 1982

3-4 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

4-5 The Cardiac Patient and Sexual Rehabilitation; American Heart Association, MN Affiliate; Minneapolis; CONTACT Diane Campbell, 2630 University Ave. S.E., Mpls., MN 55414, 612/376-7520.

4-6 Cardiopulmonary Medicine; St. Paul Ramsey Medical Center; St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

5 Neonatal Resuscitation; North Memorial Medical Center; NMMC, Mpls.; CONTACT Milton E. Baker, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5565.

10 Dermatology; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT Mark Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

11-12 Current Concepts in Perinatal Medicine; U of M Medical School and St. Paul Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

March 1982 (Continued)

15 & 17 Basic Cardiac Life Support; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

13-20 Mercy-Unity Winter Medical-Dental Seminar; Mercy Medical Center; Keystone, Colorado; CONTACT Joseph Cardamone, M.D., 4050 Coon Rapids Blvd., Coon Rapids, MN 55433, 612/572-4567.

19 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

19 Symposium on Ethics; North Memorial Medical Center; NMMC; CONTACT Ivan Brodsky, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5661.

19-20 Pulmonary-Allergy Postgraduate Education Course; St. Louis Park Medical Center; Registry Hotel, Bloomington; CONTACT Elaine Anderson, SLP, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

26 Recurrent Lung Disease in Childhood; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

April, 1982

2 Psychiatry for Primary Care Physicians; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3 Minnesota Psychiatric Society; Sofitel, Mpls.; CONTACT Mrs. Pat Rowe, 1770 Colvin Avenue, St. Paul, MN 55116, 612/698-1971.

14-16 Spring Refresher; Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington; CONTACT Chari Konerza, Suite 426, 2221 Univ. Ave. S.E., Mpls., MN 55414, 612/632-9559.

16-17 5th Annual Update in Practical Cardiology; Abbott Northwestern Hospital; CONTACT Robert Blomberg, M.D., 2727 Chicago Ave., Mpls., MN 55407, 612/874-4211.

17 Minnesota Society of Anesthesiologists; Hilton Inn, Mpls.; CONTACT David Byer, M.D., 200 1st St. S.W., Rochester, MN 55905.

19-20 Correction in Aphakia; U of M Medical School, Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

20 Medical Chest; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

22-23 Pediatric Days; Mayo Clinic/Mayo Foundation; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

23 Problems in Office Orthopedics; Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J.G. Brueggemann, M.D., 400 E. 3rd St., Duluth, MN 55805, 218/722-8364.

23 Minnesota Surgical Society; Mayo Clinic, 200 1st St. S.W., Rochester, MN 55905; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

29-30 Advanced Cardiac Life Support; Mercy Medical Center, MMC; CONTACT Gene Arel, Mercy Medical Center, 612/427-2200 Ext. 2365.

29-May 1 Allergy and Clinical Immunology; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

30-May 1 Dermatology Reviews; Mayo Foundation Mayo Clinic; CONTACT Mayo Clinic, 200 1st St. S.E., Rochester, MN 55905, 507/284-2085.

May, 1982

1 Advances in the Therapy of Diabetes Mellitus; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700 ext. 1117.

3-5 International Conference on Tissue Specific Antigens; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-7 Practice of Internal Medicine; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

5-6 Human Aging V; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

6 Spring Symposium; Rice Memorial Hospital, Willmar; Rice Memorial Hospital; CONTACT Steven Honebrink, M.D., 301 Becker Ave., S.W., Willmar, MN 56201, 612/235-4543.

7 Medical Directors Spring Meeting; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7-8 Ophthalmic Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

19-21 Update In Infectious Diseases; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

GENERAL OR FAMILY PRACTITIONER needed as a third doctor in a progressive and stable agricultural city in southwest Minnesota. Tracy has good schools and a modern-well-equipped 35-bed hospital. It's 12 miles from the state park and 22 miles away from a university town. Busy practice opportunity with 15,000 population coverage. Send resume to Wilfredo P. Apostol, M.D., Tracy Medical Clinic or contact hospital Administrator, Omer Eischen, Tracy, Mn. 56175.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

ALLERGY AND ENT

specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

NEUROLOGIST AND PSYCHIATRIST to join a multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality benefits. Send curriculum vitae and references to P. K. Olson, M.D., 101 Willmar Avenue, Willmar, MN 56201.

PROFESSIONAL LOCUM TENEN — Board of Certified F.P., 5695 Merry Lane, Excelsior, Minnesota 55331, Phone 612-474-4372.

FAMILY PHYSICIAN to provide medical care for Kenyon, Minn. Our Clinic will work with you, either through affiliation and rotation in call schedule, or loose working arrangement, to provide back up and vacation coverage. Modern, well equipped clinic building available. For further information contact Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd., 924 N.E. 1st Street, Faribault, Minnesota, 55021.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone collect: (507) 451-1120.

FAMILY PRACTITIONER FOR progressive rural Minnesota primary care clinic wanted to replace one of the doctors who is leaving for professional advancement. A pleasant family-oriented rural community in a physician shortage area, yet only 25 miles from a major metro area (Fargo-Moorhead). Fertile agricultural area, by woods and lakes only 15 miles away. Young and growing practice, excellent salary and benefits. Call collect or write: Dr. Faris Keeling or Mr. David Nelson at Barnesville Area Clinic, Box 521, 209 2nd St. S.E., Barnesville, MN, 56514 (218) 354-2111.

(Continued to page 54)

Classified Advertisements

(continued from page 53)

FIFTY PHYSICIAN multi-specialty clinic in west central Wisconsin wants cardiologist (non-invasive), neonatologist, neurologist, neurosurgeon, orthopedic surgeon, and otolaryngologist. Excellent cultural, educational, and recreational facilities. 90 miles from Minneapolis. Please contact James R. Jepson, Administrator, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5266.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

FAMILY PHYSICIAN wanted for hospital, nursing home, and large well equipped outpatient clinic. Harmony is located in the Southeastern part of Minnesota's beautiful Hiawatha River Valley, 50 minutes from LaCrosse, Wisconsin, and three hours from the Twin Cities. Salary and benefit open to negotiation. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, Minnesota 55939 or Phone 507-886-6544.

ADMINISTRATOR/MANAGER — medical group, Twin City metro or suburban area. Excellent qualifications, experience and references. Gene Inett (612) 464-4858.

WINONA, MINNESOTA — Family physicians needed for this community of 26,000 nestled in the bluffs on the banks of The Mississippi. Office space available in new Medical Office Building adjacent to 134-bed Hospital. Package may include office staff and equipment as well as rent-free office space. May join another family physician in practice. Call sharing arrangements available. Opportunity to practice wide range of family medicine, including obstetrics. Two hours south of Twin Cities. Contact Tom Campbell, Fox Hill Associates at 414/785-6500 collect.

OB/GYN SPECIALISTS. ENJOY THE SECURITY OF GROUP PRACTICE with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D., or Albert M. Sheldon, III, M.D. Winsted Clinic P.A., Winsted, MN 55395 1-612-485-4151.

FAMILY PHYSICIAN: Small consumer-owned, family practice-oriented HMO needs a board certified (or eligible) family physician to join 3½ family physicians and ½ pediatrician in providing primary care to a growing membership. Enjoy the opportunity of complete family practice, including obstetrics, free of the hassles of private practice, in St. Cloud, MN, a growing area of 50,000 with 3 colleges, 70 miles northwest of Minneapolis. Contact Gary Strandemo, M.D. or Sharon Seivert, Executive Director at Central Minnesota Group Health Plan, 1411 St. Germain, St. Cloud, Minnesota, 56301 or phone 612-253-5220.

Classified Advertisements

PSYCHIATRIST interested in child and adult psychiatry needed in Bemidji, Minnesota. Private practice or joining a 20 man multispecialty clinic next to a new 92 bed hospital is possible. Salary offered with clinic, \$50,000 plus incentive. Ideal for the individual looking for outdoor activities during all four seasons, State University located in Bemidji. Approximate trade area of 70,000. Contact D.E. Carlson, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601.

ALL OF THE ADVANTAGES . . . An opportunity to practice primary care with a progressive group of physicians that values quality medicine, patient and family-centered practice, continuity of care, service to the community, and group compatibility in a location where the advantages of the Twin Cities are easily available but in a small town with the freedoms of a slower-paced atmosphere.

This four-physician Family Practice is interviewing for two Family Practitioners to join the group to meet the patient needs in Glencoe and Lester Prairie, Minnesota. Glencoe is an ideal community — excellent schools, established industry and commerce, accredited hospital — and is only 53 miles from Minneapolis/St. Paul.

We welcome your interest and questions. Please contact Donald B. Rudy, M.D. or Gary A. Van House, Administrator, Glencoe Medical Clinic, P.A., 535 East 18th Street, Glencoe, Minnesota 55336, (612) 864-3116.

SHOREWOOD PROFESSIONAL CENTER — This Professional Center was conceived especially with the Lake Area professional in mind. Nestled in the woods near the intersection of highways 7 and 41, this prestigious new facility is located on a site selected for its high visibility, easy access and convenience to the surrounding Lake Minnetonka communities. Careful planning coupled with quality construction provides the discerning professional with unsurpassed excellence. Custom designed office suites are available to suit your individual needs, from the large medical clinic to the small private law firm. This flexibility, plus an abundance of parking and an experienced management team, indeed makes SHOREWOOD Professional Center the place to be. For information contact: WINDSOR PROPERTIES, INC., Attilio S. De Marco, 831-4500.

WANTED: Family practitioner, internist, OB-GYN to join mutli-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

GENERAL SURGEON to join 11 member primary care group. 8 Family Physicians, 2 Internists and 1 General Surgeon. Recently remodeled and expanded clinic facility, 6 blocks from modern, well equipped 99 bed hospital. Rural Community 45 minutes south of the Metro area on 35-W. Salary guarantee first year. Contact: Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd. 924 N.E. 1st Street, Faribault, Minnesota 55021.

FAMILY PHYSICIAN to join two Board-Certified family doctors, one physicians assistant, and one family counselor in a young and growing medical practice in beautiful Central Minnesota. The practice is oriented towards holistic medicine with a commitment to patient and community education. 80 minutes to downtown Minneapolis. Cultural and recreational activities in abundance. Salary depending on qualifications. Contact Adm. Daryl G. Mathews or Thomas J. Newton, M.D. at Cold Spring Medical Clinic, 26 N. Red River Ave., Cold Spring, MN 56320 — 612-685-8641.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call P. K. Olson, M.D., 612-235-1122.

SPECIALTY PRACTITIONERS — Good opportunity for Psychiatrist, General Surgeon, Internist with Cardiology interest, and Orthopedist. Eight Family Practitioners available for referral. JCAH Accredited 103 bed modern hospital. Up to date staff and equipment. Solid, quiet community-25,000 people in service area. Good schools. Pleasant, safe life style. 40 miles equidistant to Madison or Milwaukee via Interstate highway system. Contact Leo Bargielski, Administrator, Watertown Memorial Hospital, Watertown, Wisconsin, 53094-9990.

(Continued on page 56)

Classified Advertisements

(Continued from page 55)

LOCUM TENENS: Temporary Family Practice position available in multi-specialty clinic starting 1-1-82. Contact Allen F. Meyer, M.D., Medical Director, Group Health Cooperative, 2119 Heights Drive, Eau Claire, Wisconsin 54701. Phone: (715) 835-0663.

GENERAL SURGEON to join multispecialty staff of Twin City HMO, January 1982. Competitive salary and benefits. Contact: Richard Webber, M.D., Medical Director, SHARE Health Plan, 555 Simpson St., St. Paul, MN 55104; phone 612-645-0171.

WANTED: GP to join rural practice located 30 miles from Grand Forks, N.Dak. Call (218) 745-4151. W.A. Pinsonneault, MD, P.O. Box 107, Warren, MN 56762.

GENERAL SURGEON, 30. Board eligible July, 1982. University trained, operative and diagnostic vascular surgery. Prefer partnership, single or multispecialty group practice in larger Minnesota city. Available July, 1982. Contact H. McCollister, University of Nebraska Medical Center, 42nd & Dewey Avenue, Omaha, NE 68105.

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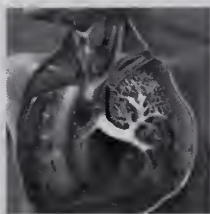
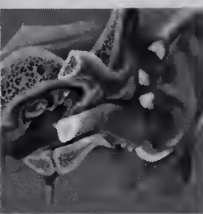
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Bactrim is useful for the following infections when due to susceptible strains of indicated organisms (see indications section in summary of product information):

Expanding its usefulness in antimicrobial therapy



in recurrent UTI...

a continuing record of high clinical effectiveness against common uropathogens

in acute otitis media in children...

effective against both major otic pathogens...with b.i.d. convenience

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clears the sputum and lowers its volume...on b.i.d. dosage

in shigellosis...

faster relief of diarrhea than with ampicillin²

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. Limited clinical information presently available on effectiveness of treatment of otitis media with Bactrim when infection is due to ampicillin-resistant *Haemophilus influenzae*. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. **Blood dyscrasias:** Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. **Allergic reactions:** Erythema

multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. **Gastrointestinal reactions:** Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea and pancreatitis. **CNS reactions:** Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. **Miscellaneous reactions:** Drug fever, chills, toxic nephrosis with oliguria and anuria, periarthritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some gonitogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: Double Strength (DS) tablets, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100; Tel-E-Dose[®] packages of 100; Prescription Packs of 20 and 28. Tablets, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose[®] packages of 100; Prescription Packs of 40. Pediatric Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry-flavored—bottles of 100 ml and 16 oz (1 pint). Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).



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BactrimTM succeeds

in recurrent urinary tract infection

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from site to source

Bactrim continues to demonstrate high clinical effectiveness in recurrent urinary tract infections. Bactrim reaches effective levels in urine, serum, and renal tissue¹...the trimethoprim component diffuses into vaginal secretions in bactericidal concentrations¹... and in the fecal flora, Bactrim effectively suppresses Enterobacteriaceae^{1,2} with little resulting emergence of resistant organisms.

1. Rubin RH, Swartz MN: *N Engl J Med* 303 426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

BactrimTM DS

160 mg trimethoprim and 800 mg sulfamethoxazole

DOUBLE STRENGTH TABLETS

maximizes results with B.I.D. convenience



* due to susceptible strains of indicated organisms

Please see previous page for summary of product information.

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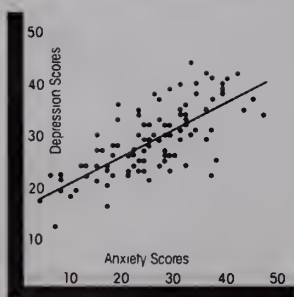
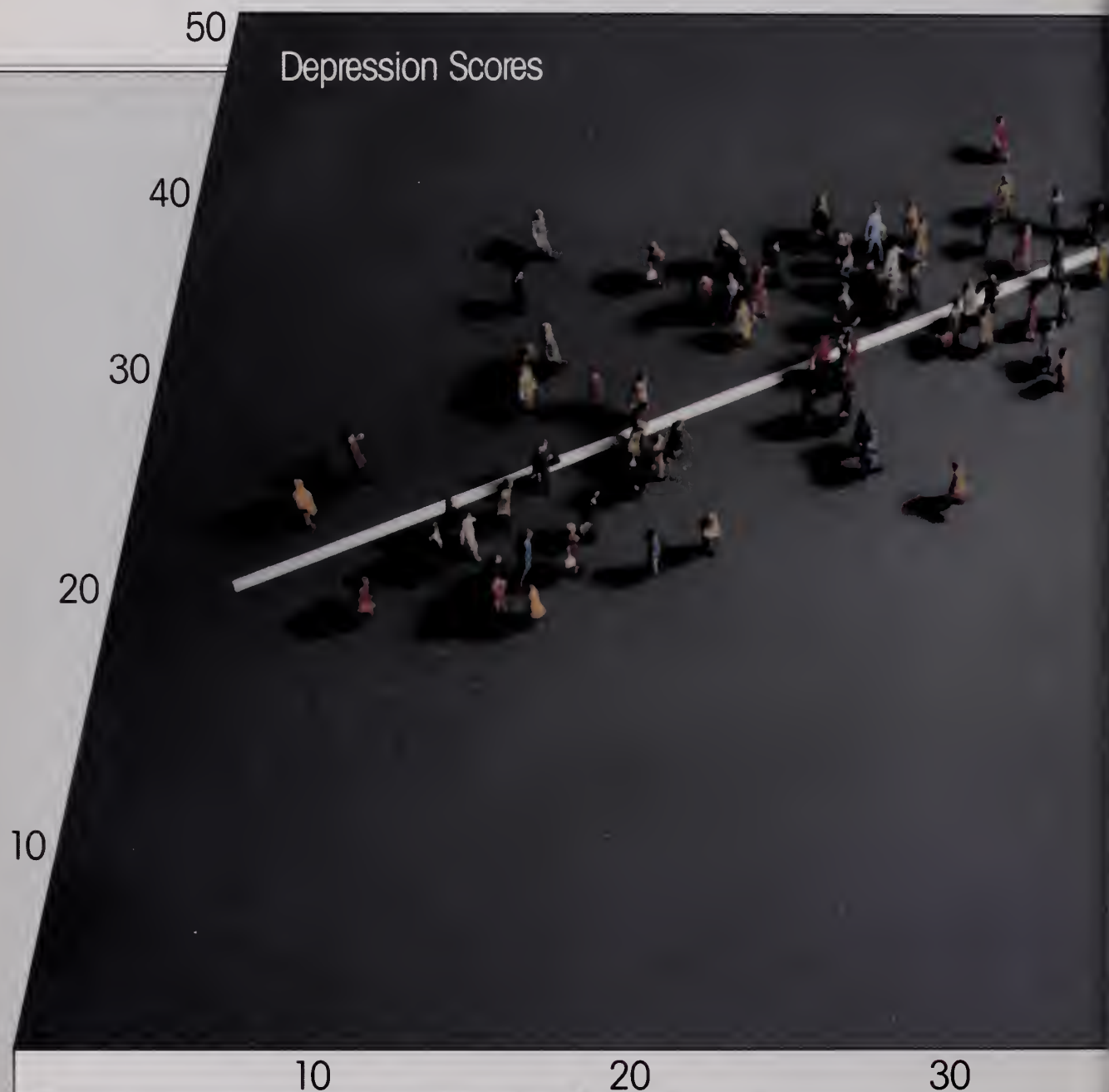
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FOR THE 7 OF 10 NONPSYCHOTIC



Clear correlation between anxiety and depression³

The above graph illustrates a relationship between anxiety and depression, indicating that patients seldom present with anxiety or depression alone; more often they have both in varying degrees. Data based on a sampling of 100 outpatients (64 male; 36 female) seen at a general psychiatric clinic.

³Adapted from Claghorn, J. The anxiety-depression syndrome. *Psychosomatics* 11:438-441, Sept-Oct 1970.

DEPRESSED PATIENTS WHO ARE ALSO ANXIOUS^{1,2}

Most depressed patients are also anxious. . .

Some authors estimate that 70% of all nonpsychotic patients with symptoms of depression have concomitant symptoms of anxiety.^{1,2} One author found a distinct correlation between anxiety and depression scores in 100 nonpsychotic outpatients administered the Minnesota Multiphasic Personality Inventory in a general psychiatric clinic.³ As depression scores increased, so did anxiety scores. No attempt was made to select patients other than to exclude psychotics.

but not psychotic

The logic of treating both components of anxious depression is clear. Antipsychotics, like the phenothiazines, however, carry a well-documented risk of tardive dyskinesia.⁴ Because of this, an APA Task Force recently recommended the judicious use of phenothiazines in cases other than chronic psychosis or the use of alternative treatments.

A better way to give relief

Limbitrol combines the specific anxiolytic action of Librium® (chlordiazepoxide HCl/Roche)—a benzodiazepine with a long history of safe use—with the antidepressant action of amitriptyline, a tricyclic of established clinical efficacy. In comparison to phenothiazines, Limbitrol and its components have rarely been associated with tardive dyskinesia or other extrapyramidal side effects. And in terms of rapid response and patient compliance, Limbitrol appears to be superior to amitriptyline alone. Controlled multiclinic studies showed Limbitrol relieved more symptoms more rapidly than did amitriptyline.⁵ Despite a higher incidence of drowsiness, the dropout rate due to side effects was lower with Limbitrol. (See adverse reactions section in summary of product information on next page. As with any CNS-acting agent, patients should be cautioned about driving or using dangerous machines while on therapy with Limbitrol.)

References: 1. Rickels K: Drug treatment of anxiety, in *Psychopharmacology in the Practice of Medicine*, ed. Jarvik ME. New York, Appleton-Century-Crafts, 1977, p. 316. 2. Schatzberg AF, Cole JO: Benzodiazepines in depressive disorders. *Arch Gen Psychiatry* 35:1359-1365, 1978. 3. Claghorn J: The anxiety-depression syndrome. *Psychosomatics* 11:438-441, 1970. 4. The Task Force on Late Neurological Effects of Antipsychotic Drugs: Tardive dyskinesia, summary of a task force report of the American Psychiatric Association. *Am J Psychiatry* 137:1163-1172, 1980. 5. Feighner JP *et al*: A placebo-controlled multicenter trial of Limbitrol versus its components (amitriptyline and chlordiazepoxide) in the symptomatic treatment of depressive illness. *Psychopharmacology* 61:217-225, 1979.

Anxiety Scores

50

In moderate depression and anxiety

Limbitrol®

Tablets 5-12.5 each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)

Tablets 10-25 each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt)

Relief without a phenothiazine

Please see summary of product information on next page.

LIMBITROL® TABLETS Tranquilizer—Antidepressant
Before prescribing, please consult complete product information,
a summary of which follows:

Indications: Relief of moderate to severe depression associated with moderate to severe anxiety

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use; then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses). Myocardial infarction and stroke reported with use of this class of drugs. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12.

In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extropyramidal symptoms, syncope, changes in EEG patterns.

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

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President's Letter



Scope of Practice Considerations

Scope of practice legislation and the resulting regulations have been debated and contested since the turn of the century.

The legal questions involving licensure, certification, and registration are determined by legislation and the courts, and, sometimes by an interpretation by the Attorney General's Office. Supervision and administration of the rules are provided by the respective licensing boards for health professionals and by the Commissioner of Health.

Over the years there have been many questions of this nature. Most recently was the Murr Decision regarding the legality of blood drawing by an Inver Grove Heights chiropractor. The district court decision ruled that blood drawing and diagnosis was outside the scope of chiropractic practice. This decision is on appeal, but regardless of the decision, the scope of practice debate will be continued by chiropractors in the legislature. The Minnesota Chiropractic Association has expanded its lobbying staff, and a major effort will be made to broaden the chiropractic practice act.

Chiropractors may also seek legislation which would mandate hospital staff privileges and HMO coverage for their services. Podiatrists are also expected to join in this effort.

Several questions of a similar nature will be contended with by our state legislature. I would like to examine briefly some of these issues.

Acupuncture is surfacing in this legislative session. A bill to be introduced which reflects the recommendations of the Human Services Occupational Advisory Council's attempts to define acupuncture and to regulate its practice by the establishment of practice standards would require the development of a roster. This bill would change dramatically the theory of licensure in Minnesota. Past practice has been to allow a licensing board to regulate those matters which come within its scope of authority. Here, since the

Minnesota Attorney General has declared acupuncture to be the practice of medicine, the Board of Medical Examiners is the appropriate body to regulate physicians in this practice. This bill would, in fact, do just the opposite and place a licensed physician under the dual regulation of the Board and the Commissioner of Health.

Optometrist's scope of practice will again be sharply contested. Two bills have been introduced regarding eye care:

1. A Patient Advice Bill which would require an optometrist to advise a patient to seek medical evaluation if certain signs or symptoms are present in the eye, and
2. an Optometric Drug Bill which would authorize optometrists to use drugs.

In addition, a proposal to mandate HMO optometric coverage may also be heard this year.

Mandated third party payment for nursing services is another issue expected to be considered in 1982. Representative Karen Clark, a Minneapolis nurse, is expected to author this legislation. At the present time, the policy of Blue Cross/Blue Shield of Minnesota is not to pay for allied health professional services either in independent practice or under M.D. supervision unless mandated by the legislature. Of concern here is that the nursing act is very vague as to the limits of independent judgment to be allowed a nurse.

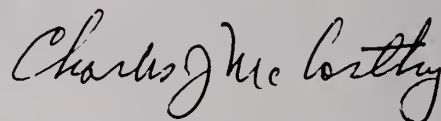
A bill related to midwifery has been prepared and will be introduced at the request of the Board of Medical Examiners. The bill follows the policy of the American College of Obstetrics and Gynecology which requires that a midwife be a registered nurse and be supervised by a physician. This bill leaves the definition of what constitutes midwifery to the Board.

The above issues are those currently being debated and have impact on the general question of scope of practice. The question of who will practice medicine is

PRESIDENT'S LETTER

to be decided. The answer has been subject to many modifications in the past, and this will undoubtedly continue in the future. We must preserve our ability to provide strong and effective input into the debate.

Thus, it is absolutely imperative that you keep your local-state representative and senator informed of these results.



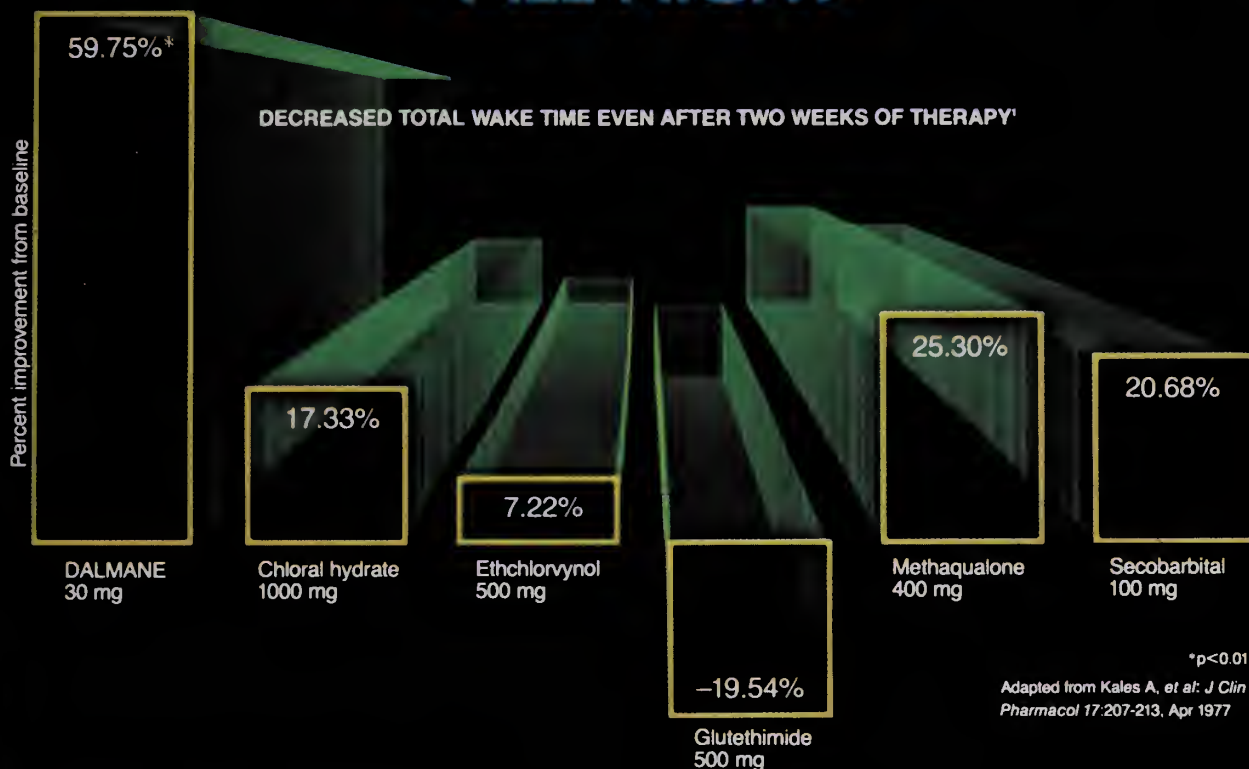
Charles J. McCarthy, M.D.
President
Minnesota Medical Association

**Continuing Medical Education
St. Cloud Hospital
Workshop on Blood Component Therapy
Saturday, March 20, 1982; 8-4:30**

Program: Introduction	Roslyn Yomtovian, M.D., Pathologist and Medical Director of Blood Bank, St. Cloud Hospital.
Blood Components: The Role of American Red Cross Blood System	Robert Bowman, M.D., American Red Cross Blood Services, St. Paul Region.
Past, Present, and Future of Blood Component Therapy	Jeffrey McCullough, M.D., University of Minnesota Hospitals and Director of American Red Cross Blood Services, St. Paul Region.
Untoward Effects of Blood Component Therapy	S. Breannndan Moore, M.D., Mayo Clinic Blood Bank.
Blood Component Therapy in Neonates and Children	Phyllis Warkentin, M.D., University of Minnesota Hospitals.
Blood Components for Surgical and Trauma Patients	John Crosson, M.D., Hennepin County Medical Center, Minneapolis.
The Use of Blood Components in Patients with Coagulation Problems	William Swaim, M.D., V.A. Medical Center, Minneapolis.
Blood Bank Support of the Oncology Patient	Bruce Lewis, M.D., University of Minnesota Hospitals.
Panel Discussion of Submitted Case Histories	Moderated by Roslyn Yomtovian, M.D.

Approved for 7 hours of CME Credit for physicians, and designed to meet the registration requirements of the Minnesota Board of Nursing. For further information, contact Jane Ceynar at St. Cloud Hospital, Department of Pathology, (612) 255-5632, St. Cloud, Minnesota. This workshop is being cosponsored by the American Red Cross Blood Services, St. Paul Region.

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- which can cause transient insomnia in the elderly¹⁰
- which can require careful monitoring in cardiovascular patients¹⁰
- which have strong anticholinergic effects¹⁰

Antihistamines

- which are *not* reliable sleep-inducing agents¹¹
- which may produce stimulation instead¹¹
- which have anticholinergic effects¹¹

Major tranquilizers

- whose side effects may be troublesome for nonpsychotic patients¹²
- where tolerance for sedation appears rapidly¹²

Dalmane does not cause significant worsening of sleep beyond baseline levels upon discontinuation.⁴

References: 1. Kales A, et al. *J Clin Pharmacol* 17:207-213, Apr 1977 2. Data on file. Medical Department, Hoffmann-La Roche Inc., Nutley NJ 3. Greenblatt DJ, Allen MD, Shader RI. *Clin Pharmacol Ther* 21:355-361, Mar 1977 4. Kales A, et al. *Clin Pharmacol Ther* 18:356-363, Sep 1975 5. Moore JD, Weissman L. *J Clin Pharmacol* 16:241-244, May-Jun 1976 6. Spiegel HE. Data on file. Medical Department, Hoffmann-La Roche Inc., Nutley NJ 7. Robinson DS, Amidon EL. Interaction of benzodiazepines with warfarin in man, in *The Benzodiazepines*, edited by Garattini S, Mussini E, Randall LO. New York, Raven Press, 1973, pp 641-646 8. Warfarin Study. Data on file. Medical Department, Hoffmann-La Roche Inc., Nutley NJ 9. Baldessarini RJ. Drugs and the treatment of psychiatric disorders, chap. 19, in Goodman and Gilman's *The Pharmacological Basis of Therapeutics*, ed 6. New York, Macmillan Publishing Co. Inc., 1980, pp 391-447 10. Cole JO, Davis JM. Antidepressant drugs, chap. 31.2, in *Comprehensive Textbook of Psychiatry II*, edited by Freedman AM, Kaplan HI, Sadock BJ, ed 2. Baltimore, The Williams & Wilkins Company, vol 2, 1976, pp 1941-1956 11. Douglas WW. Histamine and 5-hydroxytryptamine (serotonin) and their antagonists, chap. 26, in Goodman and Gilman's *The Pharmacological Basis of Therapeutics*, ed 6. New York, Macmillan Publishing Co. Inc., 1980, pp 609-646 12. Davis JM, Cole JO. Antipsychotic drugs, chap 31.1, in *Comprehensive Textbook of Psychiatry II*, edited by Freedman AM, Kaplan HI, Sadock BJ, ed 2. Baltimore, The Williams & Wilkins Company, vol 2, 1976, pp 1921-1940

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported at recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitation, chest pains, body and joint pains and GU complaints. There have also been occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, and euphoria, depression, slurred speech, confusion, restlessness, hallucinations and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect.

Adults: 30 mg usual dosage; 15 mg may suffice in some patients. **Elderly and debilitated patients:** 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



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Editor's Notebook

Signs of the Times in Competitive Medicine

Second of Two Parts. What All the Excitement Is About.

"Sofar I'm unimpressed with the quality of discussion revolving around the issue of 'pro-competition' in the health care field . . . I wonder what all the excitement is about."

Eli Ginzberg PhD, "Veteran Economist Casts
Critical Eye at 'Competitive' Plans,
American Medical News, November 6, 1981

After reading my October 1981 editorial "Signs of the Times in Competitive Medicine: First of Three Parts",¹ a reporter from *American Medical News* phoned me last week with two questions: (1) What is all the excitement about in the Twin Cities? and (2) Whatever happened to your second editorial? I shall answer him here.

What All the Excitement Is About

To answer the first question, I offer this smorgasbord of local competitive happenings:

1. The Great Billboard War among competing HMOs is heating up (A current billboard raising physicians' eyebrows proclaims: "Before our doctors examine you, we examine our doctors." To which one physician wryly retorted: "For what?").
2. Six of seven Twin Cities' HMOs are now losing money (Local HMO sages say these losses are temporary — due to inflation, recession, physician overusers, and lack of monitoring toughness).
3. Competitive pressures have forced the average census of Twin Cities' hospitals down to about 70 percent, close to the breakeven point (If I were a punning man, I might quip that competitive medicine makes for bad financial common census).
4. Young specialists continue to flow out of teaching hospital residency pipelines (They join HMOs, migrate to rural areas, or set up practice in the Cities, or leave the state. Ironically, young specialists are allowed to set a higher profile of fees than experienced specialists. Other perverse things also are happening, e.g., hospitals, to accommodate these new specialists and to stay competitive, are constructing new medical office buildings in overdoctored areas).
5. The University of Minnesota's proposal to build a new \$190 million university hospital is running into serious problems because of shrinking patient load, dwindling money from the state budget, and swelling doubts about the University's capacity to compete in the market (How much longer will hard-strapped third parties pay two to three times the amount for the same services offered in community hospitals? Indeed, university health service patients have already been advised to go to community hospitals or forego reimbursement. Pro-competition enthusiasts do not seem to have thought through what happens to research and teaching when one competes on a price basis).
6. Minnesota's (and perhaps the nation's) two largest nonprofit multihospital chains, Fairview Hospitals and Health Central, are flexing their managerial muscles. They are managing more services for more hospitals, expanding their number of beds; joining with physicians to form joint ventures outside the hospitals, "unbundling" their services as separate businesses and one (Fairview) has even acquired a for-profit chain of hospitals.

As chains expand, influence of physicians is declining; clout of paying organizations (HMOs, other prepaid plans, and business) is growing; and distinction between "non-profit" and "for-profit" chains is blurring.

7. The Foundation for Health Care Evaluation has joined hands with 14 large Twin Cities' business firms, with 135,000 employees and dependents, to form hospital review groups to discourage unnecessary hospitalizations and to shorten hospital stays (If government wasn't effective in controlling hospital admissions and lengths of stays, how effective will coalition groups be? The hunch here is: more effective. But returns are not yet in).
8. The Metropolitan Health Board has switched from a regulation to a competition strategy (This has come about, in my view, because of debilitating and losing political battles to stop a new suburban hospital from being built, to halt the forming of a for-profit investor-owned outpatient surgical center, and to gain the right of naming which marginal hospitals to close. The January 17 edition of the *Minneapolis Tribune* described the ideological switch this way: "Competition vs. regulation has been a major issue in debate over how to curb the spiralling cost of health care. The competition advocates are clearly leading in the Twin Cities area, and the health board members vote yesterday (to give up their effort to name which hospitals to close) confirms a retreat by this governmental regulatory board").
9. Blue Cross and Blue Shield of Minnesota have reported major losses these last two years — \$26.1 million in 1980 and \$9.6 million in the first 11 months of 1981. Reasons cited were HMO competition, growth in chemical dependency programs, reduced Medicare and Medicaid payments with cost-switching to private patients, and "adverse selection" with high risk patients staying with the Blues and low risk patients going to other prepaid plans (The Blues' financial adversities led to a 16 percent increase on October 1, 1981 in individual rates and may culminate in a 30 percent hike in 1982 group rates as Blue Cross and Blue Shield try to catch up).
10. Meanwhile, back in the medical staff rooms, grumblings and rumblings about "competitive medicine" continue to reverberate. These reverberations surface as questions or comments. To wit: "What direction is medicine heading?" "Whatever happened to professionalism?" "The next thing, you know, professional courtesy will go down the drain." "I can compete on the basis of quality — but not on price." "Quality, not price, is what makes a professional." "Sooner or later, patients will learn low price means rationing." "What is the government going to do with all the money it saves on health care?"

When one presses practitioners about patient losses to HMOs, the adverse selection phenomenon again emerges. Clinicians who treat older patients report few losses. (One internist group has lost only four patients in their list of 8,000.) But those who care for young working patients with dependents report greater erosions and more feelings against HMOs. I refer here to obstetricians, pediatricians, family practitioners, or young internists building a clientele. Physicians are keenly sensitive to departing HMO patients because the patient-capturing HMO asks for patient records. The effort and expense required to send these records sensitizes physicians to HMO inroads.

Conclusions to Question One

Competitive medicine in the Twin Cities is creating diverse and complex changes in the health care market. Among other things, the competitive forces are: (1) reshaping the health care dollar, shifting patients from inpatient to out-patient care; and, in the process, lowering hospital censuses and shortening hospital stays; (2) narrowing the profit margins of HMOs and other prepaid groups; (3) putting financial pressures on knowledge-intensive and technology-intensive hospitals, i.e. teaching and referral; (4) resulting in adverse selection, with people with chronic health problems taking expensive and extensive plans and the

younger healthier people selecting the less expensive and more limited plans; (5) leading to a new cost consciousness through pressures by the Blues, state government, business coalitions, and prepaid plans; and (6) reducing the role and need for government planning and regulatory agencies.

In short, competition is having negative and positive impacts. Among the negatives are emphasis on price rather than on quality, stress on the commercial rather than the professional ethic, and overuse of unproven technology to stay competitive. The principle positive effect is an awareness of cost and responses to that awareness.

Because of the intensity of competitive activity in the Twin Cities, we have become the marketplace model for the nation. As I have said before,² I am skeptical that our experience can be superimposed on the rest of the United States. Experiences with and consequences of competitive medicine will vary from region to region, from city to city, and from neighborhood to neighborhood. I strongly doubt if any regulatory government pro-competition bill can homogenize or control local market forces:

I shall end this answer with a quote from Paul Ellwood: "I used to feel that there were some magic buttons in Washington. If they could be found and pushed, the medical care system could be transformed. But I have literally given up on the federal government as an effective change agent. I simply have not been able to change its basic ways whether it is controlled by politicians who share my reform philosophy or by people who oppose it. . . . The health care system is a series of local enterprises. To change them, they must be taken one at a time, because each is different. Different ingredients, different interests dominate, and they are just all over the place when it comes to willingness to changes."³

Whatever Happened to My Second Editorial?

So much for the locals, now for a look at the national picture and why my second editorial was delayed.

Three months ago, in October 1981, I participated, along with 119 other graduates of Harvard University's six-week program of Health Systems Management, in a seminar "Competitive Strategies in the 1980's." The seminar took place at Airlie House Conference Center, an old secluded estate converted to a retreat for conferences. The center is nestled in the rolling Virginia horse-country about 45 miles west of Washington, near Warrenton. For the seminar, Harvard recruited 27 national speakers. These included: Reagan's man in charge of changing health policy (Robert Rubin, M.D., Assistant Secretary for Planning and Evaluation of the Department of Health and Human Services), senior Congressional staff members, hospital and health care association members, senior officials of the American Hospital Association, the Federation of American Hospitals, the Blue Cross and Blue Shield Associations, the Washington Business Group on Health, current and past health benefit officers of General Motors and ALCOA, as well as the Chairman of the Board of the American Medical Association, and the physician president of the Catholic University of America.

The advance promotional material said of the seminar:

"The premise of the Seminar Program Committee is that there are currently five major competitive forces operating in the country's \$250 billion-a-year health and medical marketplace. As we see it, the first, and currently the most powerful, is the GOVERNMENT. A second is made up of the individual and growing number of corporate groups of HOSPITALS AND OTHER HEALTH CARE DELIVERY INSTITUTIONS AND SYSTEMS in the private sector. AMERICAN BUSINESS AND INDUSTRY which purchase health and medical plans for millions of their employees, are a third force; and a fourth force is THE INSURANCE INDUSTRY which sells and administers health and medical plans covering more than 200 million Americans. The fifth force, as identified by the Program Committee, includes the MEDICAL PROFESSION AND THE RELATED HEALTH PROFESSIONS which have the responsibility for dealing directly with the consumers of health care to keep

them well, diagnose their illness, determine the services required, and either provide the hands-on care, or supervise that care provided by others."

That puts the national competitive medicine problem into a \$250 billion dollar nutshell. The dollar figure reminds me of the late Senator Everett Dirksen's remark: "A billion dollars, here. A billion dollars there. Pretty soon, we'll be talking about real money."

In any event, I have delayed my report on the seminar for two reasons: (1) I found the proceedings inconclusive and difficult to summarize coherently; and (2) I was waiting for the official summary from Harvard to arrive. Well, that summary has arrived, and sure enough, I'm feeling coherent.

So I shall begin by quoting the official Harvard conclusions (with which I agree):

- "Competition in the financing and delivery of health and medical services is an idea whose time has come. Its advent to center stage has been prompted by a combination of political and economic influences, the most compelling of which is a critical need for cost containment. The ultimate form and shape the "competitive strategies" will take are more likely to be determined in the marketplace than by legislation or regulation."
- An ever-increasing number of aspects of competition are already evident in various guises as the country's health care institutions, physicians, and other health care professionals, business and industry, health insurance companies, consumers, and government all respond to particular social and economic problems within the current political milieu. Enthusiasm for any comprehensive legislation attempting to restructure America's health care system by mandating specific forms of competition seems to have cooled decisively — if, indeed, that enthusiasm was ever much more than rhetorical.
- Therefore, the consensus appears to favor a strategy of "letting it happen", partly because there seems to be persuasive logic for the "pro-competition" case, and partly because of a general antipathy to what seems to be the only alternative — more regulation.
- There also seems to be a new entrepreneurial thrust in the health and medical marketplace which seeks to identify and seize targets of opportunity while being careful to avoid being outflanked or co-opted by the other competitive forces — by other colleagues or others who would take over turf, control, or dollars."⁴

Summing Up the Second Answer

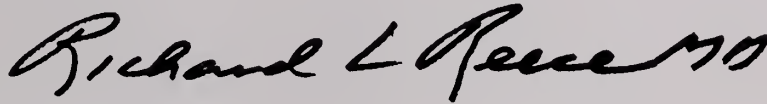
To sum up, then, there's enough competition out there already; it's likely to intensify; and entrepreneurs are going to have more of a say in what happens than the government. In a word, health care is more likely to be industrialized than nationalized.

I predict the pro-competition bills, which share the following features in common, will die from lack of a coalition.

- Uniform ceiling on tax deductions allowed workers and employers for health insurance purchases or contributions.
- Offering of more than one plan by employer to employee.
- Minimum set of benefits for each plan.
- Financial incentives to encourage employees to purchase least costly plans.
- Federal government financing plan, "voucher" system, to allow Medicaid and Medicare patients to participate in competitive plans.
- Incentives to providers to encourage them to organize competitive plans.

Why will there be no coalition to form around such a plan? Four reasons: (1) Those most intimately involved with health care — patients, physicians, hospital administrators, insurers, and even employees — are the least enthusiastic; (2) Those organizations with long track records in the health care system — medical schools, the AMA, Blue Cross and Blue Shield, and the American Hospital Association — have adopted a stance of cautious neutrality; (3) Labor is implacably hostile and; (4) The public still wants high cost quality care equitably distributed with shared risk. Besides, competition — among physicians, between physicians and hospitals, among hospitals, and among insurers — is going full-tilt

right now. Nationally, as well as locally, this competition, is having its marketplace influences — 57 hospitals across the country closed last year, medical school applications are dropping off, physicians are diffusing into rural areas, patients are shifting from hospitals to outpatient facilities, third parties are vying for market share, HMOs are beginning to grow faster, many third parties are applying cost-consciousness pressures, and hospitals are combining to achieve economies. Why push what is already happening with a government regulated pro-competition bill, when it is taking place right under our noses, right here in the River Cities.



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Continuing Education

“Insulin Dependent Diabetes Type I”

A five-day course of Insulin Dependent Diabetes (Type I) for family members and health professionals interested in the care and management Type I diabetes is being sponsored by the Diabetes Education Center, a component of the St. Louis Park Medical Center Research Foundation, Minneapolis, Minnesota.

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Tuition: \$300.00

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For further information please contact Helen R. Bowlin, R.N., Health Professional Coordinator, Diabetes Education Center, 4959 Excelsior Boulevard, Minneapolis, Minnesota 55416 Phone (612) 927-3393.

Social Security — Disability Cases

The Social Security Administration alerted physicians to expect “a substantial increase in requests for medical reports” as it begins a review of the four million people receiving disability benefits. As many as 150,000 people may be dropped from the program this fiscal year. The crackdown results from a 1980 law requiring Social Security, starting next month, to review nearly every disability case at least once every three years.

Social Security urged physicians to point out to their patients that they, the physicians, do not give an opinion or participate in the decision on whether the patients are disabled. These decisions are made by the state disability offices.

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Regressing Atypical Histiocytosis Benign or Malignant?

KEVIN J. FLYNN, M.D.,* LOUIS P. DEHNER, M.D.,† KAZIMIERA J. GAJL-PECZALSKA, M.D.,‡
MARK V. DAHL, M.D.,§ NORMA RAMSAY, M.D.,@ and NANCY WANG, Ph.D.%

Regressing atypical histiocytosis (RAH) of skin is a cutaneous proliferation of atypical neoplastic cells with paradoxically indolent biological behavior. The characteristic appearing atypical mononuclear and multi-nucleated "RAH" cells have morphologic and functional features indicative of histiocytic differentiation. This entity must be distinguished from malignant lymphoreticular disease, lymphomatoid papulosis, malignant melanoma and squamous cell carcinoma.

DERMAL LYMPHORETICULAR infiltrative lesions frequently pose a worrisome situation to the dermatologist and pathologist. The clinical context such as the age of the patient, duration and number of lesions, and systemic manifestations influence the level of concern and further approach to the problem. It has been known for some time that a seemingly innocuous insult such as an insect bite can produce an extremely atypical dermal infiltrate suggestive of malignant lymphoma.¹ The appellation of "pseudolymphoma" has been applied to this and to other infiltrative processes which despite their histologic appearance have a benign clinical course.²

This study summarizes our experience with two patients who presented in a similar fashion with rapidly evolving nodulo-ulcerative cutaneous lesions histologically composed of an extremely atypical dermal infiltrate. Biopsies from both cases showed identical morphological, surface marker, and cytochemical features consistent with a high grade histiocytic malignancy, but the clinical course was paradoxically and uniformly innocuous. This report summarizes clinical and histopathologic features reported elsewhere³ and furnishes additional clinical and cytogenetic data.

Case Studies

Case 1

A 10-year-old girl presented with a two-month history of a fungating lesion of the right lower abdomen. It was originally interpreted as malignant melanoma, and she underwent a right inguinal lymphadenectomy. Several months later additional smaller lesions developed which had a similar histologic appearance. There was no evidence of metastatic disease. During the following three years, additional lesions developed but spontaneously resolved. Although all biopsies showed a highly atypical and putatively malignant dermal infiltrate she remains in good general health more than six and one-half years after the onset of her disease.

During her clinical course a typical hemogram showed a

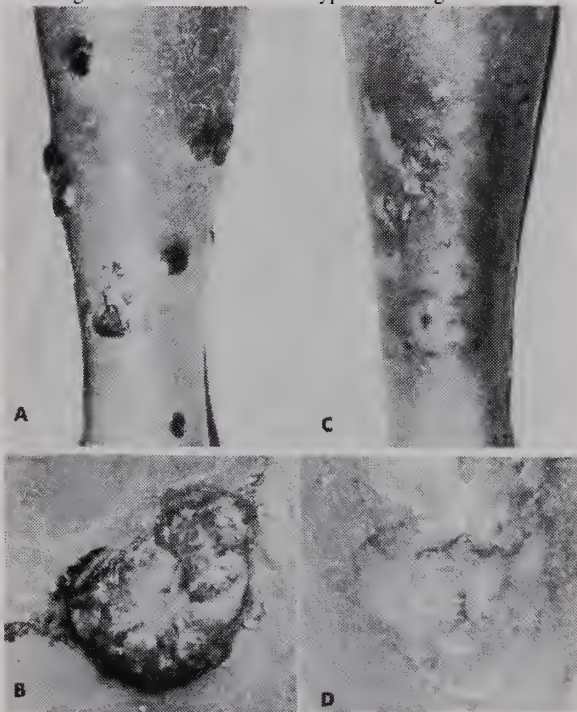


Fig. 1 — Clinical lesions. A & B lesions at the time of presentation. Atrophic macules are seen in areas of spontaneously regressed tumor. C & D) Regression of clinical lesions. Biopsy of atrophic areas showed increased vascularity with fibrosis but with no evidence of a neoplastic or inflammatory infiltrate. The lesion in D eventually showed complete re-epithelialization. (From Flynn, K.J. et al.: Cancer, 1981, in press, with permission.)

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The 1980 Ernst Award Lecture on Anatomic Pathology. The annual Ernst Award for outstanding work in Anatomic Pathology by medical students, graduate students, and residents of the University of Minnesota was established in 1977 in honor of Dr. Kenneth F. Ernst through the generosity of Mr. and Mrs. Thomas R. Turner of Clearwater, FL, and is administered by the Minnesota Medical Foundation and the Bell Institute of Pathology. Kevin J. Flynn, M.D. was the 1980 awardee.

hemoglobin of 14.1 g/dl, WBC 5400/mm³ (neutrophils 62%, lymphs 32%, monos 6%), platelets 284 × 10³/mm³. Bone marrow biopsies on various occasions showed a slight increase in eosinophils. Peripheral blood lymphocytes consisted of 70% T-cells and 7% B-cells. Serum lysozyme was 7.7 g/ml (nl = 2.0-11.9). The serum immunoglobulin levels were normal and measured as follows: IgG 1405 mg/dl, IgM 131 mg/dl, IgA 116 mg/dl, and IgE 6 IU/ml.

Case 2

A 64-year-old man had a six-month history of nodulo-ulcerative lesions on the right lower leg some of which eventually healed spontaneously. Atrophic areas remained after resolution (Figure 1). An extensive evaluation failed to disclose systemic involvement. The histologic findings were virtually identical to Case 1 (Figure 2). He remains in good general health and free of disease more than two and one-half years after the onset of his illness.

A typical hemogram showed a hemoglobin of 15.7 mg/dl, WBC 6500/mm³ (neutrophils 45%, lymphs 38%, monos 8%, eos 5%), platelets 313 × 10³/mm³. Lymphocyte blastogenesis to the mitogens phytohemagglutinin, concanavalin A, and poke weed mitogen were within normal limits. Cell mediated lympholysis (lymphocytotoxicity) performed on various target cells was positive and within the normal range.⁴

Histopathological Features

The two patients had a total of 13 biopsies upon which the morphological and other aspects of this study were based. Light and electron microscopy,

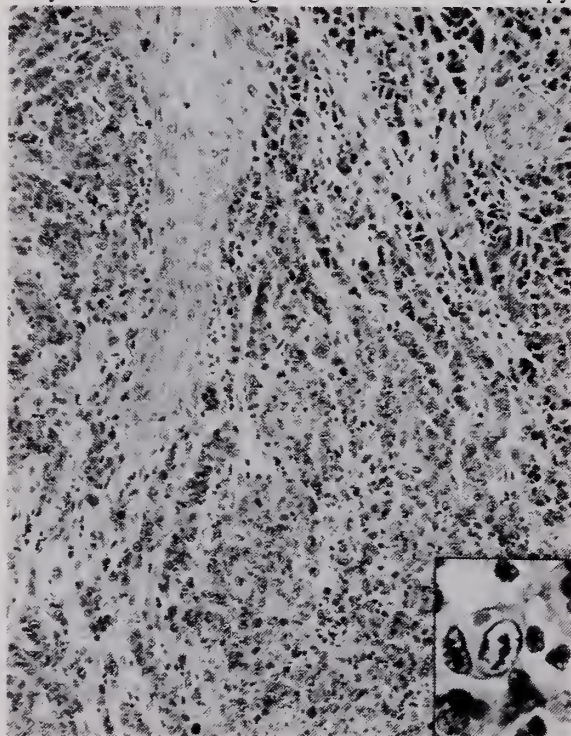


Fig. 2 — Photomicrograph of RAH. There is epitheliomatous epidermal hyperplasia and dermal infiltration by sheets of atypical mononuclear cells and atypical multinucleated RAH cells. The inflammatory component is relatively small. Inset — erythrophagocytosis by multinucleated RAH cell. (B5 fixation, H & Ex 160; inset × 650, formalin). (From Flynn, K.J. et al.: *Cancer*, 1981 in press, with permission.)

functional characteristics, and enzyme cytochemistry produced identical results in both cases.

There were three distinctive histopathologic features of this process: atypical mononuclear and giant multinucleated ("RAH") cells, polymorphous inflammation frequently accompanied by increased vascularity and fibrosis, and epitheliomatous hyperplasia of the epidermis (Table 1).

TABLE 1
Clinical and Histopathology Features of
Regressing Atypical Histiocytosis

Clinical Features

- Ulcerating Cutaneous papules nodules tumors
- Regression and Residual Atrophic Scars
- Indolent Biological Course

Histopathology

- Epidermal Hyperplasia
- Polymorphous Inflammation
- Prominent Vascularity
- Dermal and Subdermal Fibrosis
- Highly Atypical Mononuclear and Multinucleated RAH Cells

Atypical mononuclear and multinucleated giant cells were the microscopic hallmarks of these lesions. These two cell types had sufficiently similar nuclear and cytoplasmic features to suggest a histogenetic relationship. They were present in all specimens but were occasionally overshadowed by extreme epidermal hyperplasia and a dense inflammatory infiltrate. There tended to be an inverse relationship between the number of RAH cells and the degree of polymorphous inflammation and fibrosis. Cytologically, the mononuclear and multinucleated RAH cells had darkly stained and well-defined cytoplasmic borders. A prominent pale-staining, PAS-positive and diastase-resistant zone was present in the paranuclear area of the mononuclear cells and near the cell center of the multinucleated cells. Erythrophagocytosis, present in both cases, was a prominent feature in some specimens (Figure 2), but was absent in others. The nucleus was oval to reniform, horseshoe-shaped or ring-shaped. Nuclei of multinucleated RAH cells frequently were arranged in a wreath-like configuration. Mitotic figures were prominent in some specimens.

Epidermal epitheliomatous hyperplasia was very extensive during the evolving phase of a lesion. It was so prominent in some biopsies as to transiently suggest the diagnosis of squamous cell carcinoma. Neutrophils, small lymphocytes and occasional eosinophils were the most abundant cell types of a frequently prominent inflammatory component. The resolving or healing phase was characterized by epidermal atrophy, progressive dermal fibrosis and diminution of the

cellular infiltrate. This change is appreciated clinically in Figure 1c.

Ultrastructural, Cell Marker, and Enzyme Cytochemical Features

The atypical mononuclear and multinucleated RAH cells showed ultrastructural features of histiocytes, which included the presence of numerous cytoplasmic multivesicular bodies.⁵ Enzyme cytochemical studies⁶ showed abundance of cytoplasmic hydrolases including acid phosphatase, α -naphthyl acetate esterase and beta-glucuronidase. Cell marker studies⁷ also showed the atypical cells to have features of histiocytes including strong Fc receptors and complement receptors, but the inability to form E-rosettes (Table 2).

TABLE 2

Membrane Marker and Cytochemical Characteristics of Regressing Atypical Histiocytosis

PRESENT	ABSENT
Surface Markers	
FcIgG receptors	E-rosette formation
Complement receptors	Immunoglobulins
Latex particle and RBC phagocytosis	
Enzyme Reactivity	
Acid Phosphatase (tartrate inhibited)	Specific Esterase
Non-specific Esterase (Fluoride inhibited)	Peroxidase
Beta-glucuronidase	Alkaline Phosphatase
	Lysozyme
	Terminal Deoxynucleotidyl Transferase (TdT)

Cytogenetic Features⁸

The modal chromosome number of the tumor cell population from Case 1 was 51 (hyperdiploid). The structural changes resulted in 7 marker chromosomes. They were 1q-, 2q-, 12p, 13p+, 14p+, and two identical marker chromosomes of unknown origin (Figure 3). The modal chromosome number of the RAH cells from Case 2 was 93 (hypertetraploid). Five different marker chromosomes were identified including the addition of an extra dark band to the terminal end of chromosome 14 (14q+).

Discussion

The two patients described in this report presented a disturbing paradox between the clinicopathologic appearance of cutaneous lesions with the morphologic attributes of malignancy yet an indolent biologic course. It may be argued that the period of clinical observation remains too brief to predict the long-term outlook for these patients. That point remains a contentious one but the fact remains that there has been

no evidence of systemic manifestations and the lesions retain the capacity for spontaneous regression.

It has been possible through a series of studies to provide some insight into the histogenesis of this entity which we have designated as regressing atypical histiocytosis. The atypical cells ("RAH cells") occurred as mononuclear and multinucleated variants. These cells through the application of standard cytologic criteria had the features of malignancy. Mitotic figures were frequently abundant. The RAH cells were typically intermixed with acute and chronic inflammatory cells although one or the other class of cells (RAH versus inflammatory) tended to predominate in a particular biopsy. Ultrastructural, immunological, and enzyme cytochemical studies confirmed the nature of the RAH cell as showing histiocyte differentiation.

The biological character of the RAH cell as neoplastic rather than reactive was suggested by the cytogenetic investigation. Hyperdiploidy (Case 1), hypertetraploidy (Case 2), and identical marker chromosomes in numerous tumor cells in both cases represent two fundamental attributes of neoplasia, i.e. aneuploidy and clonal derivation. These cytogenetic findings, therefore, are evidence for the neoplastic rather than inflammatory nature of this process.

Regressing atypical histiocytosis is an extremely rare disorder but there are some similar and possibly identical examples in the literature. Histiomonocytoid reticulosis,⁹ giant pseudomalignant granuloma,¹⁰ and cutaneous histiosarcoma¹¹ are some of the terms which have been used in previous reports.

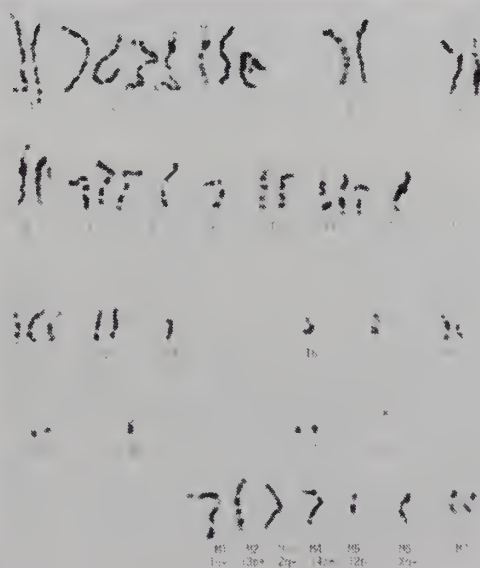


Fig. 3 — Chromosomal analysis by the G-banding technique from Case 1. There are hyperdiploidy with 51 chromosomes and seven marker chromosomes.

The histopathological differential diagnosis of this disorder encompasses a variety of lymphohistiocytic disorders as well as unrelated neoplasms, such as malignant melanoma and squamous cell carcinoma. Malignant histiocytosis, cutaneous Hodgkin's disease, leukemia cutis (myelocytic and monocytic), large cell lymphoma, mycosis fungoides, and lymphomatoid papulosis are the major histopathological differential diagnostic considerations. Its histiocytic nature and indolent biological course are the major distinguishing features of RAH. A period of observation after a thorough negative clinical evaluation is advised if regressing atypical histiocytosis is suspected. Once the histiocytic character of the infiltrate has been established through the various techniques utilized in this study, and malignant histiocytosis excluded, the patient should be carefully watched over a period of time.

Finally, we must consider the possibility that this condition is intrinsically malignant but, for some unknown reason was biologically contained, perhaps because of its superficial cutaneous location, in our two patients. Should this condition originate in deeper tissues, its biologic behavior, conceivably at least,

may be more aggressive. Another possibility is that regressing atypical histiocytosis may represent an indolent variant of Hodgkin's disease or malignant histiocytosis.¹² Regardless of these difficulties; the indolent course of disease in the two patients we have described, presented a remarkable clinicopathological paradox. The ultimate benign or malignant nature of this condition in a larger group of patients awaits clarification.

Addendum

Since the submission of this manuscript, an enlarged lymph node developed in the inguinal region of Case 1 which was biopsied and found to contain focal aggregates of atypical cells. She has no other clinical evidence of extracutaneous disease following a thorough investigation.

Acknowledgments

The authors wish to thank the CML laboratory of the Histocompatibility Laboratories, University of Minnesota Hospitals for their performance of lymphocyte blastogenesis and cell mediated lympholysis (CML) studies; and Louis L. Flynn, II, M.D. and Erhart Haus, M.D. for their translations from the French and German.

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Rationalization for Infrequent Pap Smears — Twigg (page 89).

Use of Hickman and Broviac Central Venous Catheters in High Risk Patients

TERENCE QUIGLEY, M.D.*; DAVID E. R. SUTHERLAND, M.D., Ph.D.*† and RICHARD J. HOWARD, M.D., Ph.D.*‡

Silastic central venous catheters were placed in 21 high risk patients. There was no mortality and minimal morbidity associated with catheter placement and care. Our results seem to indicate that placement of these catheters in high risk patients is both safe and efficacious.

SILASTIC CATHETERS have been developed for permanent placement in the central venous system¹. The catheters are designed to minimize the risk of infection. They can be inserted by a minor operation, and their use has greatly facilitated home hyperalimentation¹⁻⁴. We have used the catheter not only for hyperalimentation, but also to provide vascular access in difficult situations for patients who required prolonged intravenous therapy and frequent blood drawing. The results of our experience are described in this report.

Material and Methods

Patients

Catheters were placed in 21 patients, nine males, and 12 females. The patients' ages ranged from 17 to 74 with a mean of 40 years (Table). The most common indication for catheter insertion was for administration of chemotherapy in patients with inadequate peripheral veins. In most of these patients prior treatment with chemotherapeutic agents resulted in sclerosis and obliteration of their peripheral veins. Some patients also required frequent blood drawing for various laboratory tests.

Catheters

We use either the Broviac Parenteral Alimentation Catheter (catalog #201) or the Hickman Right Atrial Catheter (catalog #207). Both are made by Evergreen Medical Products, Inc., Medina, Washington 98039. The catheters are made of silicone rubber impregnated with barium. The barium makes the catheter radio-opaque. The two catheters differ mainly in size. The

Broviac catheter is 90 cm long, has an outside diameter of 2.2 millimeters and an inside diameter of 1.0 millimeter. A Dacron felt cuff is attached to the middle of the catheter and is placed just below the skin exit site. Fibrous tissue grows into this cuff and prevents bacteria from ascending along the catheter from the skin. A Leur-lock connector is attached at the end of the catheter for attachment to intravenous lines. The Hickman catheter is slightly larger than the Broviac catheter. Its outside diameter is 3.2 millimeters and its inside diameter is 1.6 millimeters. One version of the Hickman catheter (catalog #208) has two Dacron felt cuffs a few cm apart providing a second barrier to ascending infection within the tunnel. A disposable cap with a rubber diaphragm can be attached to the Leur-lock connector at the end of either catheter. This diaphragm connector readily accepts needles and obviates the need to disconnect the intravenous tubing for injections and infusions. The Hickman catheter is used if one of the main purposes of catheter placement is for blood drawing. For infusion therapy only, or if the vein of insertion is small, the Broviac catheter is adequate.

Insertion

Our technique of catheter insertion was similar for that described by Heimboch and Ivey⁵. The procedure is explained in detail to the patient before insertion. All patients are given 1 gram cefazolin intravenously 30 minutes prior to insertion and every six hours postoperatively for 24 hours. The catheters are inserted under sterile conditions in the operating room. The patient's chest and clavicular area is scrubbed with Betadine® and draped. The skin and subcutaneous tissue is infiltrated with 0.5 percent lidocaine. A 3 cm transverse incision is made inferior to the acromial process. The cephalic vein is isolated in the deltopectoral groove and its patency is verified. A curved subcutaneous tunnel is then made with a long clamp.

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The tunnel extends from the lateral aspect of the incision to an exit site approximately 2 cm lateral to the lower sternum. This exit site chosen with the patient prior to the procedure. Having the exit site next to the lower sternum allows the external portion of the catheter to be cradled in the bra of females when it is not in use. The catheter is pulled in through the tunnel from the exit site, and the Dacron felt cuff is positioned immediately under the skin. The catheter must be placed in a gentle curve to avoid kinking.

Once the catheter is situated in the subcutaneous tunnel it is trimmed to an appropriate length so that its end will lie in the superior vena cava. It is threaded into the cephalic vein so that the tip of the catheter reaches the superior vena cava. The catheter is secured by a ligature around the cephalic vein. The appropriate position is confirmed by fluoroscopy or an Xray of the chest.

The cephalic vein is often occluded, since most patients have received chemotherapy. In that case we extend the incision slightly medially and split the pectoralis muscle. A venous tributary to the axillary vein is identified on the chest wall, and the catheter is placed into the axillary vein via this tributary.

Alternatively, an incision can be made over the external jugular vein in the neck and the catheter is tunneled over the clavicle and placed into the superior vena cava through the external jugular vein. Many of our patients had profound thrombocytopenia as low as 10,000 platelets per cubic millimeter. Nevertheless, postoperative hematoma or hemorrhage can be avoided by meticulous hemostasis during the operative procedure.

Catheter Care

The catheter dressing is changed using sterile techniques every 24 to 48 hours. The exit site is cleansed with alcohol, and Betadine® ointment is applied followed by a new dressing. The catheters are intended for multipurpose use and are subjected to many manipulations — most commonly administration of chemotherapeutic agents or blood products and obtaining blood specimens for laboratory tests. In conventional situations, the use of central venous catheters for obtaining blood is discouraged, but our patients had no other venous access. Prior to insertion of the catheter, a physician would spend as much as one hour obtaining a blood sample from a patient, a procedure that required multiple needle punctures for

TABLE

PT	Diagnosis	Purpose of	Cath	Outcome		Total Days Catheter In	Comments and Complications
				Patient	Catheter		
1	Crohn's disease and short bowel	Hyperalimentation	H	outpatient	patent	332+	Gained 25 lbs. in 6 months
2	Hodgkin's	chemotherapy	H	died	patent	35	
3	AML	chemotherapy	B	died	out	104	Cath. pulled ? sepsis-cult. sterile
4	Erythroleukemia	chemotherapy	B	died	patent	49	Hematoma chest wall
5	JODM	IV infusion	B	died	out	27	Cath. pulled ? sepsis-cult. sterile
6	AML	chemotherapy	B	died	patent	39	
7	AML	chemotherapy	B	died	patent	26	
8	Transplant recipient	Antilymphoblast globulin administration	B	died	out	13	Cath. pulled ? sepsis culture <i>Staph. aureus</i>
9	AML	chemotherapy	B	died	patent	20	
10a	sickle cell anemia	IV infusion	H	—	out	10	Cath. clotted
10b			H	outpatient	patent	133+	
11	AML	chemotherapy	B	died	patent	43	
12	CML	chemotherapy	H	outpatient	patent	256+	catheter leaked and repaired, see 1
13	AML	chemotherapy	H	outpatient	patent	152+	
14a	AML	chemotherapy	B	—	out	12	Cath. clotted
14b			B	died	out	42	Cath. pulled ? sepsis-cult. sterile
15a	AML	chemotherapy	B	—	out	6	Cath. clotted
15b			B	outpatient	patent	158+	
16a	AML	chemotherapy	B	—	out	33	Cath. clotted
16b			H	died	out	3	Cath. clotted
17a	Hodgkin's	chemotherapy	H	—	out	26	Cath. leaked-removed
17b			B	died	out	112	Cath. pulled ? sepsis-culture <i>Staph. aureus</i>
18	JODM	IV infusion	H	outpatient	patent	61+	
19	CML	chemotherapy	H	Inpatient	patent	55+	
20	CML	chemotherapy	H	inpatient	patent	61+	
21	AML	chemotherapy	B	outpatient	patent	61+	

AML = acute myelocytic leukemia

CML = chronic myelocytic leukemia

JODM = Juvenile onset diabetes mellitus

H = Hickman

B = Broviac

the patients and that was associated with much unpleasantness for patient and physician alike. We have developed a standard method to keep the catheters patent. Broviac and Scribner² state that filling the catheter with 1,000 units of heparin will maintain catheter patency for one week. However, because of the many manipulations these catheters are subjected to, we use a different protocol. If the catheter is used for constant crystalloid infusions, no heparin is necessary. After drawing blood the intravenous infusion is reconnected and flushed with 10 ml normal saline. If the catheter is unused for any period it is irrigated with a solution of 5 ml saline containing 100 units heparin per ml. This irrigation is repeated daily or every time the catheter is used. If blood products are administered, the catheters tend to become "sluggish", possibly because platelets adhere to the catheter. Therefore we recommend that the catheter be flushed with 20 to 30 ml saline every hour during the period of blood administration. Following blood product administration 100 ml of normal saline is infused over one hour; the catheter is then flushed with the 5 ml of heparin solution (100 units per ml). If the catheter becomes occluded Riella et al.³ have suggested that 2,000 USP units heparin be injected under pressure. This procedure is repeated every day until the catheter is fully patent. The patient can be taught the routines of catheter care, and most patients assume responsibility for care of the catheters, both in the hospital and following discharge.

Results

Twenty-six catheters were placed in 21 patients (Table). Fifteen were Broviac catheters and 11 were Hickman catheters. No deaths were related to catheter placement. One patient (Number 4, Table) developed a chest wall hematoma the night following operation. The hematoma was not drained and it eventually resolved. No other complication related to catheter placement occurred.

Sixteen patients had catheters placed for chemotherapy of leukemia. Most of these patients were leukopenic (white counts $< 1,000/\text{mm}^3$) and thrombocytopenic. All patients were receiving antibiotics at the time of catheter insertion. No wound infections or exit site infections were encountered. Two patients had *Staphylococcus aureus* cultured from the catheter tips after removal.

In the patients who did not die of their disease soon after the operation, the catheters have been in place from 55 to 332 days. The patient whose catheter has functioned the longest uses it for home hyperalimentation.

Most patients had their catheters placed for chemotherapy and they have gone home between treatments.

Nine patients presently have functioning catheters. Five patients developed fever and had the catheter removed because catheter sepsis could not be excluded as a cause of the fever. However, organisms were cultured from only two of the five catheters. In both cases, the organism was *Staphylococcus aureus*.

Four catheters were removed because the catheter clotted. The clotted catheters occurred early in our experience. This complication can usually be prevented by attention to catheter placement and by using the flushing techniques we have outlined. A leak occurred in two catheters. One leak occurred in the silastic tubing in the subcutaneous tunnel, and the catheter had to be removed. The cause of the leak was not determined. The other leak occurred just distal to the Leur-lock connector and was presumably due to a misdirected needle being pushed too far into the lumen of the catheter and out the side. This was repaired by transecting the catheter at a point distal to the leak and inserting a 16 gauge plastic intravenous catheter. The plastic intravenous catheter was wedged into the lumen of the Hickman catheter and secured in place with sutures. The catheter has remained functional for greater than 256 days.

Five patients required a second catheter because of catheter complications. Four were replaced because of clotting and one because of a fracture.

Discussion

The patients acceptance of the catheters has been remarkable. Once the insertion procedure is over and they realize that they will not require venous puncture for blood drawing or for intravenous therapy, patients are not only elated but immediately become very protective of the catheters and in a short time many begin dictating catheter care flushing procedures. In those instances where the catheter had to be removed because of a blood clot or leak it was the patient who requested a second catheter. Likewise the house officers caring for these patients quickly became enamored of the catheters. The time previously used to obtain venous access was available for other duties, and traumatic interactions between the patient and physician were obviated.

We have noted no difference between Broviac and Hickman catheters with regard to complications. Of the five catheters that clotted three were the Broviac type and two were the Hickman type. Blood production administration has been equally feasible

through both catheters. We currently use the Hickman catheter as often as possible, because blood drawing is easier through the larger catheter.

As noted five patients had their catheters removed for presumed catheter sepsis. Currently we recommended that catheters not be removed because of fever alone. Fever with and without sepsis are common phenomenon in patients with leukemia undergoing chemotherapy. We have been reluctant to remove catheters without objective evidence of sepsis (i.e. positive blood cultures). A meticulous search is made for other sources of infection. Only when all other

causes are excluded will we currently remove a catheter.

Our experience in these high risk patients has been favorable. We have been able to place a catheter in every patient in whom we have attempted it. A patient was recently admitted to the Oncology service and proclaimed, "Before anything is done to me, I want a catheter like Mrs. A". Physicians and patients alike are eager to avoid the trauma of painful and often fruitless searches for venipuncture sites, and the patients are spreading the word.

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Harold A. Diehl Award

The committee for the Diehl Award given annually by the Minnesota Medical Alumni Association solicits nominations for this award from the physicians of Minnesota. The award is presented to one or more physicians meeting these four major criteria:

1. Preferably an alumnus of the University of Minnesota Medical School.
2. Not engaged in an academic capacity.
3. Has made outstanding contributions to the Medical School, the University, the Alumni, and the community.
4. Has had a relatively long experience in the field of medical science or a related field.

Nominations for the 1982 awards should be sent immediately to:

Konald A. Prem, M.D., Chairman,
Harold A. Diehl Award Committee
Box 395, University of Minnesota Hospitals
Minneapolis, Minnesota 55455
(612) 373-7635

Detailed supporting documents are necessary to consider nominees, but these can be forwarded later.

University of Minnesota Medical School Reunion

Saturday, June 5, 1982 a reunion for the University of Minnesota Medical School graduating classes of 1942, 1947, 1952, 1957, 1962, 1967, and 1972 will be held in Minneapolis. A one day seminar "New Horizons in Minnesota Medicine" will be featured at the University of Minnesota Health Sciences Complex. This program will meet the CME criteria for 5 credit hours in Category I. The keynote speaker will be John L. McKelvey, M.D., Professor Emeritus and Head of the Department of Obstetrics and Gynecology from 1938 to 1967.

Inquiries can be directed to K. A. Prem, M.D., President, Medical Alumni Society, Box 395, University of Minnesota Hospitals, Minneapolis Minnesota, 55455.

Editorial

Geriatric Medicine

NURSING HOME — long term care facility — these names connote a variety of different meanings for the medical professional and lay person alike.

For some it means a solution to a number of difficult problems, both medical and personal. For others it seems to become part of the problem one is trying to solve. Often the negative impressions of nursing homes held by physicians and the general public stems from their own negative feelings of senescence.

In order for patients, families, and physicians to fully understand the benefits in the nursing home setting today, we must first give a better perspective of what long term medical care encompasses.

Only 5% of the United States population over age 65 years live in nursing homes. The majority of older Americans do not, even though many of these people may have a chronic disease. Physicians can offer much to both groups of these patients.

One of the biggest challenges facing the medical profession today is the delivery of thoughtful and comprehensive health care to the elderly. These patients often demand much from the physician's diagnostic and therapeutic acumen. Patients with age-related physical and mental changes, including perceptual deficits and degrees of memory loss, require a special expertise on the part of the physician caring for them.

*President, Minnesota Association of Nursing Home Medical Directors.

Geriatric medical research is vital for the advancement of quality care of the elderly.

Four years ago, medical directors of skilled nursing homes in this state formally organized the Minnesota Association of Nursing Home Medical Directors. The prime purpose of this organization has been to:

1. promote quality medical care to nursing home patients.
2. advance peer education among nursing home physicians.
3. assist nursing home paramedical personnel in maintaining high standards of care.

Recently the editors of MINNESOTA MEDICINE expressed an interest in publishing geriatric medicine articles. On behalf of the medical directors and attending nursing home physicians of our organization, I would like to encourage and welcome anyone with a special interest in this field to submit articles in the future for publication.

Please direct the articles for review to:

Dwight Townes, M.D. (past president of the Minnesota Association of Nursing Home Medical Directors)
9390 Medicine Lake Road
New Hope, Minnesota 55427

Physicians presently treating elderly patients in their practice are anxious to have them benefit from applied research in this field.

Ann C. Vogel, M.D.*
New Ulm, Minnesota

Cover Photograph "Silver Lake Geese"

The cover photograph was taken on a 15 degree below zero morning with no wind. Mist was rising off the heated waters of Silver Lake in Rochester, Minnesota, and the muted noise of the hidden geese could be heard in the mist.

Peggy L. Naas, a third year medical student at the University of Minnesota, is the photographer of this very unusual cover. She told the editors that as she approached the waters edge, three geese pulled up in flight, resulting in this beautiful photograph.

She is the Chairperson of the MMA Committee of Residents and Medical Students and a member of the MMA Board of Trustees. Her hopes are for a residency in orthopedics or surgery.



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Drug Disposition in the Older Adult

RICHARD BRUNDAGE, R.Ph., BSc*

IT HAS BECOME increasingly evident that the activity of many drugs is altered as a result of age-related changes in physiology. These physiological changes are expected in the normal aging process and can have a significant impact on many pharmacokinetic parameters. The effects of aging on pharmacokinetics are often complex and don't always provide clear predictive responses to drug therapy. It can be stated that drug elimination half-lives are prolonged, total drug elimination is reduced, and the changes in the volume of distribution are inconsistent.

Pharmacokinetics

Pharmacokinetics is the study of drug disposition in the body as a function of time. The processes involved are: drug absorption, distribution and elimination. It is important to realize that all three of these processes are occurring simultaneously in the body after drugs have been administered and that all three interrelate to determine the concentration of the drug in the plasma. (Figure 1).

The concentration of the drug in the plasma, (C_p) is an important pharmacokinetic parameter. Although not always the case, the physiological effect of a drug is often proportional to the plasma concentration. When this is the case, doubling the dose will result in the doubling of C_p .

The volume of distribution of a drug, (V_d) refers to the apparent volume into which a drug distributes itself

within the body. Drugs will often distribute rapidly throughout the plasma and rapidly perfused tissues. This space is collectively referred to as the central compartment. Distribution from the central compartment into the larger peripheral compartment occurs at a slower rate. The peripheral compartment includes tissues less well perfused, adipose tissue, bones, and the liver, (Figure 2). Drugs that stay mainly in the central compartment have relatively small volumes of distribution, while drugs that distribute into the larger peripheral compartment can have a much larger volume of distribution.

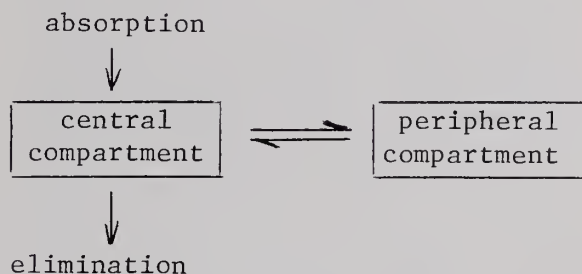


Figure 2 — Two-compartment model of pharmacokinetics

If the dose of a drug is completely absorbed, V_d can be calculated as follows:

$$\text{Volume of Distribution} = \frac{\text{amount of drug administered}}{\text{plasma concentration}}$$

Another important pharmacokinetic measure is $t_{1/2}$, or the half-life of a drug. The half-life is the amount of time it takes to reduce the plasma concentration by 50%. (Figure 3) For example, if the initial plasma concentration of a drug is 40 mg/L, the amount of time it takes the concentration to drop to 20 mg/L is the half-life of that drug. Since the half-life of a drug is independent of the dose or plasma concentration, a second half-life would yield a C_p of 10 mg/L, or $\frac{1}{4}$ the initial concentration. After 5 half-lives, a drug is usually considered to be cleared from the body.

Changes in Drug Disposition

Absorption

This is the process by which a drug proceeds from the site of administration into the systemic circulation. Drugs that are administered intravenously obviously

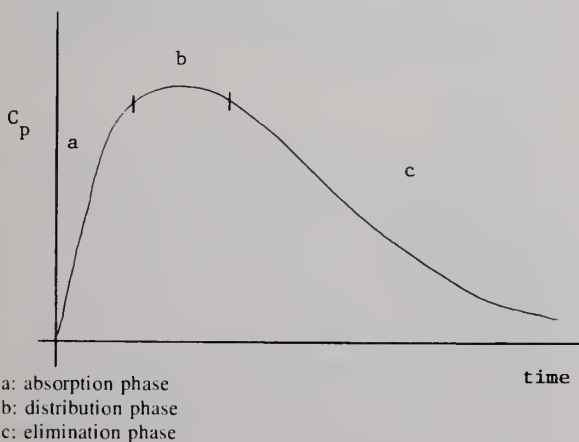


Figure 1 — Time course of drug disposition in the body.

*Instructor, College of Pharmacy, University of Minnesota, Minneapolis.

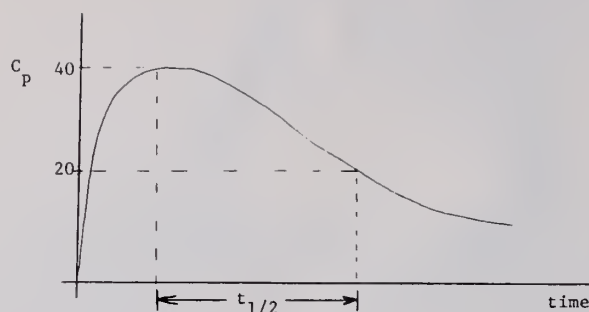


Figure 3 — $t_{1/2}$, elimination half-life

don't require an absorption step. Oral medications must first be absorbed into the general circulation before they can exert a pharmacological effect. There are several factors that result in an altered absorption pattern in the aging body.

— With an increase in age, there is a decrease in the fluid volume of the gastrointestinal tract. This causes drugs with a low solubility to be absorbed more slowly.

— The amount of drug that diffuses across a biological membrane depends on its degree of ionization. The ionization of a drug is a function of the pH of the surrounding medium and the pH of the drug. An age-related decrease in stomach acidity has been demonstrated. There is a 10-fold increase in the incidence of achlorhydria or hypochlorhydria in older adults. This leads to a potential decrease in the absorption of drugs that are weak acids.

— A decrease in cardiac output results in a decrease in the rate of blood flow to the intestines. Intestinal blood flow may be reduced by as much as 50% in older adults and can result in slower and more erratic drug absorption.

— GI pathology may be more common in older adults simply because they have acquired more years to develop a pathology. Ulcerations, surgery, and ostomies are all capable of having a profound impact on drug absorption.

Few predictive statements can be made about age-related changes in the absorption of drugs from the GI tract. In general, it seems that the rate and extent of drug absorption are largely unaltered if there is no gross GI pathology present.

Distribution

Once a drug is absorbed, it will distribute through the body. Several age-dependent changes will alter the volume into which a drug will distribute itself.

— Total Body Fluid (TBF) decreases with an increasing age. There is a 18% decrease in TBF in males and a 13% decrease in females between the ages of 30 and 80. This smaller volume of distribution could

result in a prolonged half-life and increased plasma concentrations.

— There is an age-related increase in body fat and an accompanying decrease in lean tissues. In younger males, approximately 18% of body weight is body fat. In older males it is about 36%. Younger females have about 33% body fat while older females have about 48%. This increase in the percentage of body fat provides a much larger volume into which fat soluble drugs can be distributed. The larger volume available in adipose tissues acts as a storage depot for fat soluble drugs, storing them initially, and then slowly releasing the drug back into the system. The net result is that highly fat soluble drugs such as Thorazine, Valium, Librium, barbiturates, and Dalmane, have an initial decreased intensity while fat tissues are becoming saturated, but have an increased duration of action as the drug comes back out into the general circulation.

— Protein binding provides one more potential for age-related changes in V_d . Some drugs readily absorb onto the surface of plasma albumin. This process is called protein binding. The drug-protein complex is called bound drug and is in reversible equilibrium with the free drug. Since the bound drug is not considered available for pharmacologic action, cannot cross most biological membranes, and is not available for metabolism or elimination, it is not difficult to understand how a change in the protein binding of a drug can alter the clinical response to drug therapy. With increasing age, there is a corresponding decrease in the circulating plasma albumin. With less plasma protein, there will be a smaller amount of protein binding, resulting in higher levels of free drug. Since the free drug is the pharmacologically active drug, higher levels will often lead to an increased pharmacologic response. For drugs that are not significantly bound, there won't be much of an effect. Drugs like warfarin that are highly protein bound can have an altered clinical response.

Metabolism

The primary site of drug metabolism is in the liver. This process serves to change fat soluble drugs into more water soluble compounds so they can be excreted by renal processes. Age-related changes in the metabolic step are probably the least understood because there is no direct measure for the metabolic activity of the liver. Indirect measures such as half-life and the elimination-rate constant are used to estimate metabolic activity, but the clinical picture is complicated by other drug disposition factors that also impact on these kinetic parameters.

A decrease in hepatic activity is suggested with a number of drugs that are metabolized in the liver, but other factors need to be controlled before any conclusions can be drawn. For example, the half-life of propranolol is prolonged in older adults, but the drug itself acts to reduce hepatic blood flow, a factor which itself could prolong the drug's half-life. Prior exposure to some drugs like alcohol, barbiturates, and environmental pollutants can stimulate enzyme activity and increase the metabolism of certain drugs, while drugs such as isoniazid and chloramphenicol, are capable of decreasing liver enzyme activity.

Metabolic processes do appear to change with the passage of time, but these changes may be due to physiological changes, prior exposure to drugs, disease states, or environmental pollutants.

Elimination

After a drug is distributed throughout the body compartments, the plasma concentration is reflected by the rate at which the drug is eliminated from the body. The kidney is the major site of drug elimination, although there are other extrarenal processes involved. As might be expected, there are several age-related changes that alter the elimination of drugs.

— A decrease in cardiac output, along with a narrowing of the renal vasculature, results in a 40-50% decrease in the blood flow to the kidneys by age 65.

— There is an estimated 45% decrease in the tubular mass of the kidney.

— Glomerular filtration rate (GFR) decreases 25-50% as a function of normal aging.

— All of these changes result in a decrease in the

maximum rate of urine flow in older adults. A young kidney filters about 200 L of plasma a day and produces 1500 ml of urine. An older person's kidney filters only 120 L of plasma per day and produces closer to 1000 ml of urine.

Drugs that are highly dependent upon renal function for elimination will be most susceptible to these changes, and these alterations in drug disposition can be observed. The half-life for digoxin in a younger person with normal renal function is 51 hours. In an older person the half-life is prolonged to 73 hours. Three hours after a dose of penicillin G in a younger (under 50) person, plasma levels will be 0.07 mcg/ml and the half-life of 23.7 minutes. In individuals over the age of 70, blood levels three hours after the dose are 0.91 mcg/ml and the half-life is 55.5 minutes. These two examples illustrate that age-related changes in the kidney do have an impact on the elimination of drugs from the body, and these alterations should be considered when dosing drugs for older patients.

Age-related changes in physiological functioning often result in complex changes in drug disposition in older adults. Absorption of a drug may in some cases be increased and distributed into a volume that is apparently smaller than a younger person's, but a decreased renal function results in a prolonged half-life, yielding a final steady-state plasma concentration that is not significantly different from that of a younger person. Generalizations are not easy to make, but elimination half-lives are usually prolonged, total drug elimination is reduced, and changes in the volume of distribution are inconsistent.

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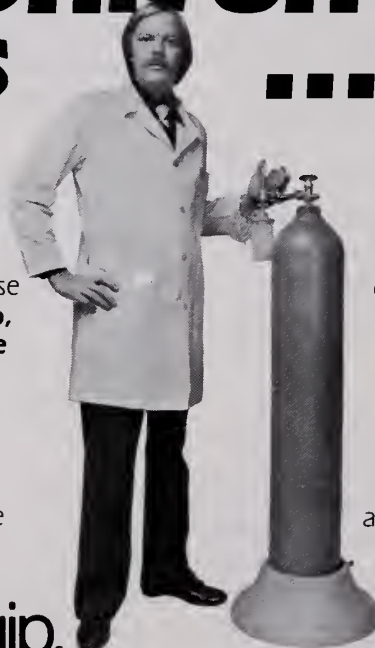
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The Rationalization for Infrequent Pap Smears

LEO B. TWIGGS, M.D.*

Recently the American Cancer Society reevaluated their recommendation concerning the frequency of obtaining cervical "pap" smears for the screening for cervical cancer. Based on their interpretation of a multitude of scientific publications ranging in scope from the estimation of the natural history of precursors of cervical cancer to mathematical analyses of cost effectiveness, they chose to recommend triennial pap smear surveillance in patients until the age of sixty-five who, following the initiation of sexual intercourse, had two negative yearly pap smears. Stemming from this recommendation, a controversy has arisen as to the optimal frequency of this previously annually recommended cancer screening test. The following review discusses the core issues related to the necessity and frequency of this examination.

"WHAT IS THE OPTIMUM interval for periodic cancer screening for cervical neoplasia with cervical cytology?" Before attempting to answer this question, familiarity with the specific assumptions which are inherent in such a query is essential. Does the taking of a pap smear actually benefit the patient? Primarily, does such benefit include reduction of morbidity and mortality from cervical cancer? Will society, third party payers, or individuals afford such a measure?

Principles of Cancer Screening Programs

While cancer screening may give us improved knowledge of the natural history of preinvasive cervical neoplasia, such knowledge is essential before implementing and evaluating a particular screening program.¹ Moreover, society and its policy makers must consider the prevention of mortality and morbidity from cervical cancer as an important health problem.² Also, the disease screened must have a treatment that, when applied to the stage of the disease discovered by screening, is more effective than treatment initiated after symptoms have been developed. To be recommended, the test itself and the consequences of a false positive test must be of low cost and morbidity. Therefore, at the core of the decision to recommend surveillance is appreciation of hidden costs of screening and the excess morbidity that may be incurred with screening. It should be recognized that benefits from screening may not be objective; for example, the screening may bring about an observed improved survival which is actually due to a prolongation of the time of diagnosis of the cancer and not a true prolongation of life.¹ The above factors

concerning general screening programs must be appreciated when asking the specific questions concerning cervical cytology and its optimum interval. Fortunately, with cervical cytology the morbidity of obtaining a smear is essentially nil. Therefore, since the optimum screening interval for cervical cytology for an *individual* patient is daily pap smears, the lengthening of this interval is based primarily on cost analysis.

Cytology — Role in Decreasing Cervical Cancer Mortality

While strictly controlled studies evaluating the role of cervical cytology in decreasing mortality from cervical cancer have not been done, there have been a host of major studies in which mortality rates from cervical cancer following screening were decreased. A convincing study compared mortality rates from cervical cancer in the Louisville, Kentucky metropolitan area which was intensively screened and compared this population to that outside of Louisville.³ Over the study period, from 1953 to 1960, there is a significant decline in death rates of the cervix in the Louisville population, but no parallel decrease from cancer of the cervix in the outlying area. Data from Iceland and British Columbia also underline the efficacy of cervical cytology as a method to decrease the incidence of invasive cervical cancer.^{4,5} Specifically, the data from Reykjavik are more impressive noting that, prior to the study period, mortality from cervical cancer was increasing, and indeed it continued to rise during the first few years of screening. However, after approximately five years of screening, the mortality rates began to decline and are now less than one-half the previous rate.⁴ The discovery of

*Assistant Professor, Gynecologic Oncology, University of Minnesota Hospitals, Minneapolis, Minnesota.

disease in an earlier stage was also noted. The Canadian experience describes a strong correlation ($r = .72$) between screening intensity and the decrease in cervical mortality. The conclusion that cervical cytology can decrease mortality from cervical cancer appears to be valid. Furthermore, morbidity from the disease may be decreased as a result of the detection of earlier stages of the disease.

Natural History of Precursors of Cervical Carcinoma

The assumption that increasing the number of cells viewed by the cytoscreener increases the efficacy of cervical cytology must be combined with accurate assessment of the natural history of the neoplastic process. Firstly, there is good inferential data showing that a relatively long preinvasive state precedes the majority of cases of invasive cancer of the cervix.^{7,8} Circumstantial evidence concerning the relationship between preinvasive and invasive cancer can be drawn by finding preinvasive lesions at the margins of invasive cancer, from uncovering preinvasive lesions in previous biopsies of patients with invasive disease, and by noting early stromal invasion in cases comprised mostly of preinvasive disease. However, the best data is obtained from the few studies in which patients with carcinoma in-situ were followed without treatment. In one study, 127 patients with untreated preinvasive disease, which were followed for ten years, 30% had developed invasive disease.⁹ However, this study, recently revised by Clemmensen and Poulsen, concluded that at least 40% of the patients with preinvasive neoplasia would develop invasive cancer.¹⁰ While many patients' abnormalities progress, a large proportion of such abnormalities will not.^{11,12} Obviously without precise predictors of behavior, over-treatment occurs. Conceptually, there is an interval before invasion occurs and also before symptoms appear. While most studies suggest a rather long interval between the detection of preinvasive lesions and invasive lesions, one must remember these studies are statistical analyses. Mean transit times between stages of dysplasia, carcinoma in-situ, and invasive cancer are calculated. While various statistical techniques have been used, there appears to be a consensus that preinvasive lesions exist on the average of five to fifteen years before progressing.^{13,14,15,16,17} However, the standard deviation of calculated mean transit times has not been elucidated. Moreover, prediction of the time invasion will occur for an individual precancer is impossible. The relative proportion of rapid progression cases is

unknown.

Agreement in the concept that identifiable preinvasive abnormalities may progress to invasion is essentially universal; the problem remains, who and how many? Realizing that preinvasive abnormalities do progress to invasive cancer, a large percentage of patients with "regression" may reflect treatment, i.e., biopsy. This, however, may also be a dilemma of imprecise histopathological predictions.¹⁸ This unpredictability leads to "over-treatment" in patients whose lesions will not progress to invasive cancer. Thusly, one can argue that screening creates a large number of patients being unnecessarily treated for preinvasive lesions of the cervix.

Clinical Dependability of Cervical Cytology

The clinical dependability of this test is related to adequate collection, proper staining, and correct interpretation of the cells. While the morbidity in obtaining a pap smear is essentially nil, morbidity may be incurred if the test is misinterpreted by either the cytotechnologist or the clinician. Certainly, with cervical cytology, there is much interobserver and intraobserver variation. Such variation in interpretation is related to relative subjective nature of cytological criteria, screening workload, and laboratory quality control. Using a standard set of slides, the Center for Disease Control (CDC), under the direction of Yobs, undertook onsite proficiency testing and retrospective rescreening to define this type of variation.¹⁹ In a series of studies, normal or mild dysplasia smears were over-called as invasive approximately 2% of the time. More impressive was the inaccuracy of the under-calling of adenocarcinoma cells, (13-20%). In these laboratories, at least, there was variable cytologic interpretation.

While the "over-reading" of cervical cytology and cervical biopsies may be due to increased pressure on responsible cytopathologists and pathologists in a litigious society, such "misdiagnosis" may be a reflection of less than adequate instruction or experience in practicing cytotechnologists and cytopathologists. Specifically, lack of formal training in pathology residencies in the United States was clearly enunciated by A.R.P. Ng in Presidential Address before the American Society of Clinical Pathology.²⁰ In one survey, 43% of pathologists who practiced cytology had no exposure during residency training. Standardization of workloads and instruction and, therefore, quality control must be evaluated and instituted since blanket recommendations imply a thorough understanding of these variables.

In the clinical sense, when our knowledge is scanty concerning important facets of the evaluation of cervical cytology, it seems dangerous to tamper with the annual pap smear interval and replace it with one which is less frequent and relies heavily on consistency in the taking and the evaluating of a few number of imperfect examinations. While few people would disagree with the introduction of cervical cytology after the initiation of sexual intercourse based on the fact that sexual intercourse is in some way associated with the development of cervical neoplasia, the upper limit of age for cervical cytology is debated. The Vancouver Group, as early as 1962, because of the extremely few cases of invasive cervical cancer seen in patients over 65, have recommended discontinuance at that age. Such a stance fails to take into account a number of conditions during a periodic pelvic and physical examination which, in older age groups, may be increasing in incidence.

American Cancer Society's Rationale

Stressing that the American Cancer Society's recommendations apply to asymptomatic women, why then has the American Cancer Society recommended a three year frequency following two negative pap smears in the majority of society's women?²¹ It is based on the fact that by most conservative estimates, preinvasive lesions precede invasive cancer by many years. While this may be true for most patients, the lack of understanding of the natural history of cervical cancer which is especially accentuated by the dearth of meaningful data on the probability of progression of an individual abnormality, combined with the possibility that a portion of patients may not develop invasive cancer from identifiable preinvasive abnormalities mitigates against solidifying recommendations.

While many are concerned about over-treating people with preinvasive lesions and, therefore, increasing the cost and the morbidity of screening, in a clinical sense an appreciation that many preinvasive lesions may not progress to invasive cancer has occurred.^{1,2} No longer are patients with abnormal cervical cytology subjected routinely to cervical conization. The use of colposcopy and directed biopsies, combined with treatment of preinvasive lesions with outpatient techniques, may have lessened the impact of such "over-diagnosis".²¹

While statistical estimates indicate that most of the effectiveness of annual screening is preserved with less frequent intervals, these estimates are based on assuming a static natural history of this disease.²³ Data from our cancer registry have noted that an increasing percentage of patients with adenocarcinoma and adenosquamous carcinoma of the cervix in younger women, who may not be adequately evaluated with the pap smear and, thus, can only be diagnosed by pelvic examinations.²⁴ While any recommendations will involve a trade-off between the risks, benefits, and the use of resources, it behooves interested clinicians to prove the efficacy of an annual exam. Such clinical studies in a private practice situation should be undertaken in order to convince the population and their financial policy makers that annual exams have many benefits which heretofore have not been emphasized.

The finding of invasive cervical cancer in a young woman with a negative pap smear has been used as evidence for the taking of frequent pap smears. The American Cancer Society has rightly stressed that the retrospective nature of these observations should be used as evidence to improve the accuracy and quality of the performed tests.²¹ While they conclude that such observations do not permit rationalizations of the frequency in screening, such a statement ignores the fact that increasing the number of cells viewed by the cytoscreener will increase the chance of diagnosing a curable cancer and that such chances are increased with increasing frequency of screening. While this may not be "cost-efficient", the cost-effective judgment is an individual and subjective decision.

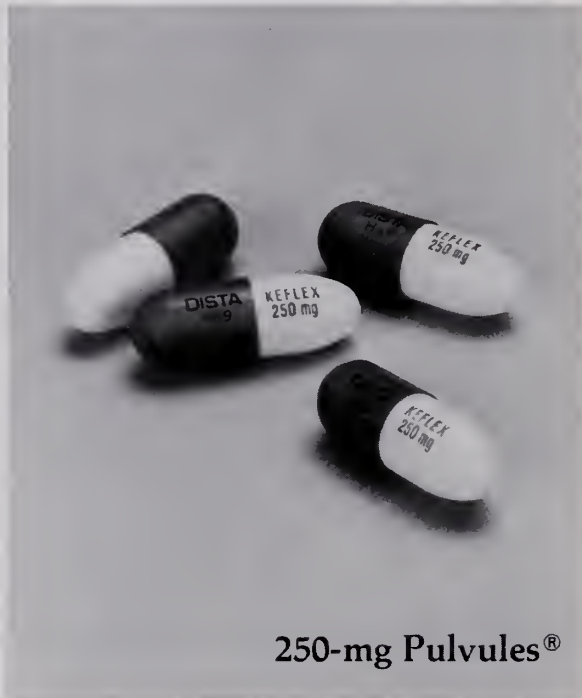
Summary

Imprecise knowledge concerning the natural history of the disease argues for increased frequency of cervical cancer screening. The uncertainty of the natural history of invasive cervical cancer and its precursors must be weighed heavily in designing screening frequency recommendations in a large heterogeneous population. Such statements, combined with the variability of the gathering and interpreting of cervical cytology, argue for caution before specific recommendations for periodic cancer screening, as suggested by the American Cancer Society, are implemented for the individual woman.

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Co-Dependency in Physicians

CAROL A. BERNARDS, M.D.*

This position paper describes common types of patients who pressure physicians for habit-forming medication and suggests ways in which physicians can avoid enabling these patients.

Definitions of Chemical Dependency and Co-Dependency

Chemical dependency can be defined as a chronic progressive illness characterized by loss of control over a mood-altering chemical* and a tendency to relapse. This illness is fatal if not arrested. Co-dependency can be defined as a progressive illness affecting those concerned with the chemically dependent person and characterized by enabling behavior. Being in one of the helping professions, doctors fall naturally into wanting to help people, wanting to fix people. However, in their training doctors are also given the advice of "primum non nocere", or the first thing is not to harm. It is the purpose of this paper to examine the doctor's role as a co-dependent and some ways in which he or she can try to change the pattern of enabling behavior in relationships with chemically dependent or potentially chemically dependent patients.

Personal Comments

Before presenting my observations I would like to outline briefly my personal experience with co-dependency. I have been through co-dependent treatment as the result of my involvement with a chemically dependent family member. As a result of this, I have had the opportunity to examine how my co-dependency affects me professionally as well as personally.

Categories of Patients Who Ask Doctors for Habit-Forming Drugs

One situation that is common in practice is for a daughter to call when, for instance, her father has died to ask for something to calm down her mother. Another

example is for a mother to call to ask for something for her daughter when her daughter's infant just died from sudden infant death syndrome. However, the expression of grief that the relatives are afraid of is normal; if grief doesn't take place now, it will take place later. Therefore, rather than to diminish that grief with a pill, I encourage the family to allow it to take place and suggest that they send the affected individual in to talk with me if they think things are getting out of hand. Pain, anxiety, sadness and anger are normal in many situations, and it is preferable to allow someone to experience these feelings than to cover these feelings with a chemical.

Even though I am a woman physician, I have more trouble saying no to women patients than to men patients when it comes to habit-forming drugs. This is probably common with many physicians to the extent that many women on chemical dependency treatment units are there because they are hooked on drugs prescribed by physicians. In our society it is more acceptable for a woman to appear helpless and needy, and doctors have a tendency to think that women can't handle life's stresses without pills. This is disrespectful to women, and yet I, too, am susceptible to falling into the trap of wanting to take care of women.

Another special category of patients is the Viet Nam veteran. Armed with horror stories of head injuries and emotionally devastating experiences during wartime, this veteran somehow convinces us that he cannot continue life without valium and percodan. Often he has been through an experience or two with chemical dependency treatment.

The elderly are another category of patients who are difficult to confront, possibly because of our fear of growing old. Additionally if we inherit a patient who's been on long term Tylenol #3 or sleeping medication, we tend to say that there's no use in trying to change an older person, that the elderly are set in their ways. And yet it is the elderly patients faced with loneliness, isolation or depression who would be much better off dealing with these feelings and looking for alternatives than taking a pill to cover up these feelings. In addi-

*Medical Director, Indian Health Board Clinic of Minneapolis.

*Common Mood-altering chemicals that patients request from physicians include: (1) "sleeping pills" e.g., Dalmane, Seconal, Sopor, (2) "nerve pills" or tranquilizers, e.g., Librium, Valium, Equinil, Fiorinal, (3) "pain pills, e.g., Codeine, Darvon, Percodan, Talwin, Demerol, Dilaudid and narcotic-containing cough syrups, e.g., Tussionex, Hycodan, and (4) "diet pills", e.g., Dexedrine, Preludin.

Address reprint requests to: Dr. Carol Bernards, Indian Health Board Clinic, 2495 18th Avenue South, Minneapolis, Minnesota 55404.

tion mood-altering drugs increase the older person's chances of loss of balance and increased confusion and increased depression, not to mention an exacerbation of these difficulties when these drugs are mixed with alcohol.

Inheriting patients from another doctor and covering for another doctor's practice are problems commonly encountered. If a patient states that his doctor has him on this cough syrup or that tranquilizer, one can still choose to practice medicine the way he wants to. I usually tell such patients that I don't use this medication for cough or that medication for nerves and give him alternatives. Often on week-ends when covering for other physicians I might say that we don't make a practice of prescribing narcotics unless the patient is seen in the Emergency Room or that we don't prescribe narcotics by phone on the weekend.

Habit-forming medications should not be used to deal with problems surrounding chemical dependency. Many times the partner of an alcoholic will ask for tranquilizers to help him deal with the spouse's drinking behavior. I believe that many co-dependents are potentially chemically dependent themselves. And it is certainly not doing these co-dependents a favor to cover up the fear and anger and sadness involved in the painful experiences surrounding the spouse's illness. These co-dependents need a certain degree of pain to help them take appropriate action in their situations and giving them a tranquilizer only prolongs their denial and their family's pain.

Patients requesting diet pills may be difficult to deal with. Again, to the extent that the physician has never had a weight problem, it is difficult to imagine the frustration that comes with inability to lose weight. However, very little if anything of long-term benefit is accomplished with diet pills and one always comes back to the necessity for changing eating behavior patterns and diet. The individual will have to face that before he can maintain a permanent weight loss and in the meantime we are harming him by placing him on a habit-forming drug.

Other miscellaneous categories of patients who pressure doctors for habit forming medications are those looking for cough syrups (eg, Trussionex, hycodan, codeine-containing cough syrup); those requesting pain pills for menstrual cramps, toothaches, low back pain and cervical strain; those who say they're allergic to codeine and darvon so they can get talwin or percodan; those who call you at five o'clock after a busy day with any of the above requests. In regard to allergy to codeine and darvon, I have gotten to the point now where I say that I never prescribe

percodan or talwin (or demerol or dilaudid) by phone and very seldom prescribe these drugs when seeing a patient in person either. As regards back pain, I never prescribe valium for back pain even though the patient states that's what works best, because I believe that if valium works best, the back pain is related to tension and that person needs to deal with his tension.

Manipulating Doctors into Prescribing these Medications

One reason that we doctors end up prescribing habit-forming medication is that patients know what to say to make us feel guilty if we say no. Some common statements that I've heard are, "But I thought doctors were supposed to help people," "Then you're not going to help me", "I've tried to reach you all day but couldn't"; (and you know you've been available but somehow there's a lingering doubt — the patient sounds so convincing), "I've been waiting two hours to see you", "The other doctor just refills my prescription", "I don't know what I'm going to do", "I could croak by then". We end up feeling defensive with these statements; it is natural to want the patient to like us and return to us; it is natural to want to take care of the patient's pain or painful situation; many times I have felt an urgency to do so. It is also natural to want to get the patient off our back by doing the simplest thing — prescribing what he or she wants. But I submit that each time we do that, the patient gets what he wants which is not what is best for him in the long run, and we end up feeling manipulated and angry and guilty. I believe there are alternatives.

How to Avoid Being Manipulated

When faced with such statements from patients, what can we do? Here are a few suggestions of things we can say. I believe that I am helping you more by not prescribing the drug you want. I am respecting you more by not prescribing this drug. I trust that you can take care of your problems without drugs. Have you considered discussing your feelings with your physician, a psychologist, psychiatrist, social worker, chemical dependency counselor, clergyman, friend or family? Have you considered Alanon or AA? If you're in Alanon or AA, have you considered discussing this with your sponsor? I would be glad to discuss alternatives with you if you wish to come talk with me. I trust that you can find alternative ways of dealing with your problem.

It is very important when stating our beliefs to be firm in following through with action. Once we make these statements we need to act as if we believe them by

not prescribing any of the habit-forming medications at that time. To state our beliefs and then turn around and prescribe 8 or 10 pills anyway is inconsistent and doesn't provide the patient with enough motivation to seek alternative help. It merely teaches the patient that he or she can hit you up for a few pills and then turn around to another doctor to increase the supply. I'm not recommending never prescribing habit-forming medications. I am stating that there are very few indications for prescribing habit-forming medications on a chronic basis. A patient with terminal metastatic cancer might be such an indication. However, even in that situation, we should keep our eyes and ears open to the emotional needs of the patient that might not best be served by a habit-forming medication. There is evidence that chronic pain such as that associated with rheumatoid or degenerative arthritis may be made subjectively worse by chronic narcotic use.

If I know that the patient is chemically dependent, then I do not prescribe habit-forming medication for anxiety even for short term use. It is common for these patients to say that they are aware of their dependency and will not abuse the drug but will take it only when "absolutely necessary". This is the same denial-logic that is used to take the first drink. That drink does not lead to abuse that day but will lead to abuse down the road because of the progressive nature of the disease. If short-term medication for anxiety seems necessary, then I prescribe such non habit-forming drugs as mellaril or vistaryl or benadryl for sleep.

Feelings When the Patient Relapses

Lastly I would like to make some comments on feelings commonly experienced when a patient with whom we've spent some time and effort relapses or returns to chemical use. First of all it is important to remember that chemical dependency is an illness that

has a tendency to relapse. However, it is easy to lose sight of this when we've taken the extra time to help the patient realize he has an illness and he reappears in an inebriated state or pressuring us for drugs. For me, my first feeling is anger, a feeling of frustration that my efforts were for naught, a feeling of hopelessness and certainly helplessness. These feelings which are perfectly natural are based on certain assumptions. One is the assumption that it was I who changed the patient. It was not I. The patient when he previously accepted treatment, happened to be ready at that time and he chose to accept my advice (and probably the advice of many others around him). It is helpful if we can view ourselves as part of God's plan to lead this person towards a healthier existence. To the extent that I get angry is the extent to which I lose sight of the fact that chemical dependency is an illness. Feeling sorry for the patient doesn't help either. Offering him hope and support to make the choice to stop using drugs and be more honest with his feelings may help. Recognizing that anger and frustration and discouragement are natural feelings when the chemically dependent person relapses is comforting. Allowing ourselves to then look at the assumptions underlying these feelings hopefully will help us not to pass judgment, but instead to be firm in not enabling the chemically dependent person and to persist in presenting alternatives to that person such as re-treatment, AA or other resources. One thing that I say to patients who are struggling with their chemical dependency is that I know they can change because I have seen others change and I myself am changing.

Acknowledgments

I wish to express my appreciation to Ms. Monica Turner for her patience and assistance in typing and re-typing this paper in it's various stages and to Dr. Stuart Thorson and Dr. Thomas Briggs for their helpful suggestions.

"Physicians in the News"

Thomas A. Love, M.D. of Ramsey County was elected as the new Chair of the Physicians Metro Health Force.

Robert F. Wilson, M.D. of Hennepin County was elected as the new Vice-Chair-Treasurer of the Physicians Metro Health Force.

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Letters to the Editor

Dear Editor:

North Memorial Hospital held a symposium on the diagnosis and management of headaches on Friday, October 16th. The symposium was well attended to the point of being "sold out." The medical center brought in nationally recognized leaders in the field for the purpose of professional education, and North Memorial should be commended for its ongoing efforts in post-graduate education.

That evening a similar program was held with the same faculty giving a program for the public. That meeting was also well attended. During the question and answer portion of that meeting one of the lay persons attending the conference stated, "before I submit my question I would like to thank you for taking the trouble to put this program on; it shows you are concerned." Her remark was greeted by an enthusiastic round of applause.

I think this illustrates two points. First, people are eager to learn about their disease. There are a number of diseases where patient education is the mainstay of good management. One has to think only of diabetes and seizures as good examples. Second, the National Migraine Foundation is an organization dedicated to education and research. It publishes a quarterly bulletin that is written for the public. Most patients find it very helpful in managing their headaches. Most physicians will find that their bulletin is a supplement to the teaching process. Minnesota physicians should tell their headache patients about the organization and suggest that they join.

The address is: National Migraine Foundation
5252 N. Western Ave.
Chicago, Illinois 60625

C. Camak Baker, M.D.
Minneapolis, Minnesota

Dear Editor:

I read with a great deal of satisfaction and glee, your letter from Mrs. Santa Claus, in December 1981 *Minnesota Medicine**. I do hope what was written will accomplish more than my attempts to teach this concept over the past 30 years at the University of Minnesota Medical School and elsewhere.

The best article on this important subject was written by Melvin L. Selzer in the *Archives of General Psychiatry* in 1960*. He states doctors address patients by their first names for inappropriate reasons:

1. to enhance their feelings of superiority
2. to avoid therapeutic commitment
3. to minimize their patient's illness
4. to reduce their own anxiety.

This practice, he continues, encourages the patient to regress even more and prolongs the patient's recovery.

I would encourage every doctor and medical student to read this paper carefully.

Irving C. Bernstein, M.D.
Minneapolis, Minnesota

*Editor's Notebook, *Minnesota Medicine* 64:13:737, 1981.

*Selzer, M.L.: The Use of First Names in Psychotherapy. *Arch Gen Psychiatry* 3:19, 1960.

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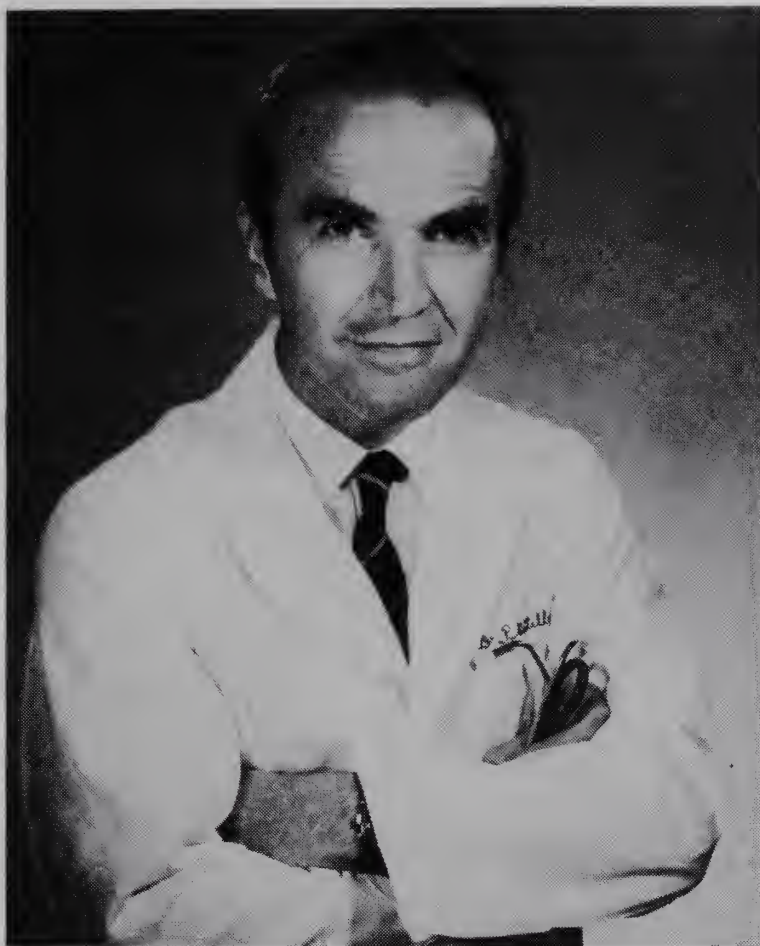


AIR FORCE

Address

Richard C. Lillehei, M.D.*

RALPH THORNTON†



1927 - 1981

He didn't have much of a serve, but he was dynamite at the net. Quick as a cat. He played tennis as he did most things in his life — with gusto. In 20 years I knew him too briefly. Can't we all say, "Rich, we hardly knew ye?"

Brilliant, healer of people, Mr. Fitness, health nut, brother, father, friend, doer, Citizen of the World. Just about every article of clothing he wore seemed to have been bought in a different country. He hardly knew what a necktie was.

He loved the world and he wanted all of it. He bought as many pieces of it as he could get his hands on.

Man of contrasts: he liked the Minnesota Symphony Orchestra and he relished Whoopie John. He could spout Shakespeare at will, or recite purple limericks. His tastes ranged from Cordon Bleu to White Castle hamburgers. He could operate all day, then fall asleep on the living room floor.

He treasured his family. He switched from smashing up Fords to smashing up Jaguars — with equal gusto.

*Remarks at Memorial Service for Dr. Lillehei. Twin City Thoracic and Cardiovascular Society Meeting, June 15, 1981. (By permission.)

†Sports Columnist, Minneapolis Star.

His Boogie-Woogie piano was like his life — hurried, missing a few notes, played with a grin and bringing down the house. He knew all the verses to Frankie and Johnny. He'd sing "Everything is Beautiful" in his cracked voice. But he meant every word — it WAS beautiful.

Going to the State Fair with him meant seeing all the horses, cows, pigs, sheep and chickens, ending up at the Biergarten, singing.

An invitation to attend the Women's Indoor Tennis Tournament brought the reply, "Gee, if you'd asked me to go dancing at the Medina Ballroom, yes; but to sit for three hours watching a tennis match, I guess not."

Another night, a call from Young America, Minnesota, with pandemonium in the background and Rich shouting, "Hey, we're at Stiftungsfest!"

He introduced us to Soleroops, the Norwegian Salute to the Sun with glasses held high. The first time he taught us, in fractured Norse, it broke everyone up, but we bought the whole bit. It became our Tennis Club Credo.

He was a mind-expander. Every square foot of his den was covered with the printed word to a depth of two or three feet. Medical journals, newspapers, periodicals, and the classics. He was equally at home with Plato and Proust, or with Mickey Spillane and Sherlock Holmes, whom he loved to read in the bathtub.

He savored a conversation, an argument. He liked a verbal joust and was prepared to back up his point with evidence.

He was fond of quotes — from Euripides to Hemingway. He'd read 'em all.

You can't tell me he's gone. He's here, just as surely as his ski tracks are still under that snow in Kenwood Park.

And Rich is running somewhere.

I've never understood runners, I've met — Bill Rodgers, four-time winner of the Boston Marathon; Dr. George Sheehan, the runners' guru who said "Running is a self-renewing compulsion,"; Dick Beardsley, tied for first at London last week. They're all intense, in a hurry to get somewhere, and to finish what they are saying.

Rich was in a hurry. He didn't have a lot of time. He often quoted the classics to save time — someone had already worked out a perfect expression of his thoughts.

If he were here, he might say, "You know, I think Lucretius had it right when he wrote in 'On the Nature of Things' in 55 B.C. that 'The sum of things is ever being renewed and mortals live dependent on one another. Some nations increase, others diminish, and in a short space the generations of living creatures are changed and like runners pass the torch of life.'"

The torch is passed.

Rich . . . Skoal!

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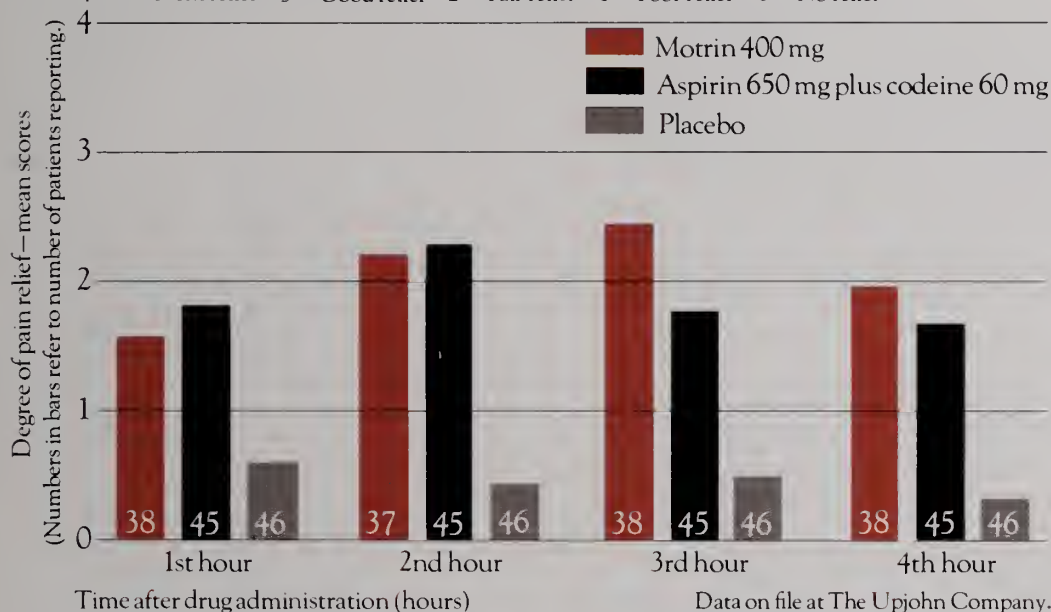
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Contraindications: Individuals hypersensitive to it, or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin or other nonsteroidal anti-inflammatory agents (see WARNINGS).

Warnings: Anaphylactoid reactions have occurred in patients with aspirin hypersensitivity (see CONTRAINDICATIONS).

Peptic ulceration and gastrointestinal bleeding, sometimes severe, have been reported. Ulceration, perforation, and bleeding may end fatally. An association has not been established. Motrin should be given under close supervision to patients with a history of upper gastrointestinal tract disease, only after consulting ADVERSE REACTIONS.

In patients with active peptic ulcer and active rheumatoid arthritis, nonulcerogenic drugs, such as gold, should be tried. If Motrin must be given, the patient should be under close supervision for signs of ulcer perforation or gastrointestinal bleeding.

Precautions: Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin and the patient should have an ophthalmologic examination, including central visual fields.

Fluid retention and edema have been associated with Motrin; use with caution in patients with a history of cardiac decompensation.

Motrin can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and those on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, or edema.

To avoid exacerbation of disease or adrenal insufficiency, patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin is added.

Drug interactions. *Aspirin*: Used concomitantly may decrease Motrin blood levels.

Coumarin: Bleeding has been reported in patients taking Motrin and coumarin.

Pregnancy and nursing mothers: Motrin should not be taken during pregnancy nor by nursing mothers.

Adverse Reactions

Incidence greater than 1%

Gastrointestinal: The most frequent type of adverse reaction occurring with Motrin is gastrointestinal (4% to 16%). This includes nausea,[†] epigastric pain,[‡] heartburn,[‡] diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of the GI tract (bloating and flatulence). **Central Nervous System:** Dizziness,[‡] headache, nervousness. **Dermatologic:** Rash[‡] (including maculopapular type), pruritus. **Special Senses:** Tinnitus. **Metabolic:** Decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see PRECAUTIONS).

[†] Incidence 3% to 9%.

Incidence less than 1 in 100

Gastrointestinal: Upper GI ulcer with bleeding and/or perforation, hemorrhage, melena. **Central Nervous System:** Depression, insomnia. **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme. **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure. **Special Senses:** Amblyopia (see PRECAUTIONS). **Hematologic:** Leukopenia, decreased hemoglobin and hematocrit.

Causal relationship unknown

Gastrointestinal: Hepatitis, jaundice, abnormal liver function. **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities. **Dermatologic:** Alopecia, Stevens-Johnson syndrome. **Special Senses:** Conjunctivitis, diplopia, optic neuritis. **Hematologic:** Hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes. **Allergic:** Fever, serum sickness, lupus erythematosus syndrome. **Endocrine:** Gynecomastia, hypoglycemia. **Cardiovascular:** Arrhythmias. **Renal:** Decreased creatinine clearance, polyuria, azotemia.

Overdosage: In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine, so alkaline diuresis may be beneficial.

Dosage and Administration: Rheumatoid arthritis and osteoarthritis, including flares of chronic disease: Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary for relief of pain.

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**ARTHRITIS
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Resuscitation, Stabilization and Transport of the Ill Newborn Infant

Part I: Resuscitation

DANA E. JOHNSON, M.D.* and THEODORE R. THOMPSON, M.D.*

This review, presented in two parts, suggests guidelines for resuscitation, evaluation, and stabilization of ill newborn infants. Emphasis is placed on anticipating the asphyxiated newborn and on the A (Airway), B (Breathing), C (Circulation), D (Drugs), and Es (Environment — Preventing Heat Loss) in resuscitation of the newborn. Stabilization of the ill newborn emphasizes the anticipation and prevention, or the detection and correction of the 5 Hs: Hypothermia, Hypotension, Hypoglycemia, Hypoxemia, and Hypercarbia plus Acidosis. Specific aspects of transport, including the importance of stabilizing the infant at the referring hospital while awaiting the transport team from a newborn intensive care unit, is emphasized.

THE 1978 MINNESOTA perinatal and neonatal mortality rates of 15.8 and 8.3 per 1000 live births represent 34% and 41% decreases in the perinatal and neonatal mortality rates, respectively, since 1970.^{1,2} The marked declines in mortality rates are a reflection of improved perinatal care being delivered throughout the state. In particular, high-risk pregnant women are being identified early. Consultation is being obtained and transfer/transport of these pregnant women with complications of pregnancy is being requested in clinical situations where the physician determines that a pregnant woman or her fetus requires care beyond the capabilities of the referring hospital or that the newborn will require specialized care after delivery. The safest, warmest, most convenient, least expensive,^{3,4} and most dependable transport remains the pregnant woman's uterus.

The majority of high-risk pregnant women can be identified prior to or during the early stages of labor.⁵⁻⁷ Nearly 60% percent of newborns requiring specialized care are born to these high-risk pregnant women. However, even with the best screening techniques, 30 to 50 percent of newborn infants requiring specialized care are born to pregnant women who either had no identifiable high-risk factor(s) during pregnancy or who developed a complication(s) only late in labor which did not permit the woman's safe transport to a regional perinatal center for delivery. Such newborn infants require prompt resuscitation, thorough evaluation, and effective stabilization while awaiting the arrival of transport personnel from a NICU in order to

prevent mortality and morbidity. The purpose of this two-part review is to suggest guidelines for physicians and nurses in the resuscitation, evaluation and stabilization of these sick newborn infants.

Resuscitation

Anticipation

Successful resuscitation of the asphyxiated newborn infant requires personnel skilled in resuscitation of newborns and proper equipment. Anticipation of the delivery of a depressed newborn permits having individuals skilled in resuscitation present at the delivery and responsible for resuscitation of the infant. (Table 1).

TABLE 1

Pregnancy, Labor and Delivery Factors Which Are Often Associated With An Asphyxiated Infant

I. Pregnancy Factors

- A. Diabetes Mellitus
- B. Pre-eclampsia, Eclampsia
- C. Rh Sensitization
- D. Multiple Gestation
- E. Oligohydramnios
- F. Prolonged Gestation (over 42 weeks)
- G. Premature Labor
- H. Prolonged Rupture of Fetal Membranes (over 24 hours)
- I. Growth Retardation of the Fetus.

II. Labor, Delivery Factors

- A. Third Trimester Bleeding (e.g., Placenta previa, abruptio placenta)
- B. Abnormal Presentation (e.g., breech, transverse)
- C. Fetal Distress (alterations in fetal heart tones)
- D. Meconium stained amniotic fluid
- E. Difficult, prolonged or obstructed labor
- F. Prolapsed cord
- G. Depressant drugs administered to mother near delivery
- H. Cesarean section

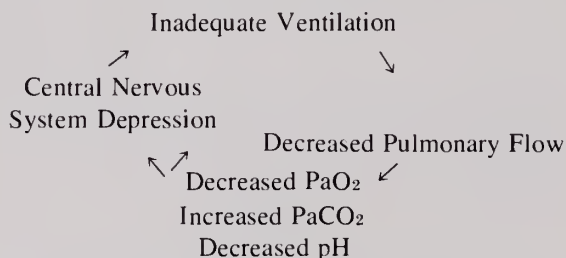
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Necessary equipment and drugs for successful resuscitation of an asphyxiated infant have been described by Clark and associates⁸ and the American Academy of Pediatrics⁹ and are outlined in Table 2. The presence of skilled personnel, of proper functioning equipment, and of appropriate drugs, decreases the crisis atmosphere which often accompanies delivery of a high-risk infant. Since the majority of newborns are not depressed at birth and do not require resuscitation, quarterly practice alerts are recommended to maintain the skills of physicians and nurses involved in perinatal care.

Recognition and Management

At birth, all infants must successfully make the transition from an intrauterine to an extrauterine environment if they are to survive. A number of excellent reviews¹⁰⁻¹² have detailed the entire transitional process, which involves the ventilation and expansion of the lungs with removal of excessive lung fluid $\rightarrow$ increased perfusion of the lungs $\rightarrow$ $\uparrow$ pH. $\downarrow$ PaCO₂, $\uparrow$ PaO₂ $\rightarrow$ and establishment of the adult circulation by the functional closure of the ductus arteriosus and foramen ovale. If failure to initiate adequate ventilation occurs, a self-perpetuating cycle leading to terminal (secondary) apnea and death occurs.



The responsibility of the personnel on the resuscitation team is to facilitate this transition in infants who are capable of accomplishing it on their own and to intervene and correct problems in infants who are having difficulty with the transition.

Resuscitation of the newborn has essentially the same priorities as the resuscitation of any child or adult. Additionally, two important facts must be remembered: (1) the body temperature of the infant must be maintained; and (2) infants are extremely vagal people in the early stages of life.

The provision of a warm, dry, neutral thermal environment is of extreme importance for the newborn immediately following the delivery. Heat loss via radiation, convection, evaporation, and conduction can rapidly lead to hypothermia in the newborn. All infants are at risk for heat loss since they have a large surface area for their body mass, cannot shiver, have

decreased subcutaneous tissue, and are usually delivered in a cool delivery room. The amount of heat loss is inversely proportional to the birth weight of the infant. Complications of hypothermia include vasoconstriction, hypotension, increased oxygen consumption and metabolic rate, metabolic acidosis, hypoglycemia, decreased surfactant production and an increased mortality rate. Excessive stimulation of the naso-pharynx by vigorous, deep suctioning, or any excessive manipulation of the newborn can lead to bradycardia and apnea mediated via the vagus nerve.¹³ Deep suctioning is most often the cause of such vagal responses and can be avoided, except where meconium is present, by limiting suctioning to the mouth and external nares.

The APGAR score has become the standard method of evaluating newborns in the delivery room. While the hope that it would accurately predict the future neurological outcome of depressed infants has not been completely realized, this scoring system does provide a means to determine the amount of resuscitation an infant needs in the first minute of life (1 minute APGAR Score) and the effectiveness of resuscitation efforts (5-minute APGAR Score). In order to assure accuracy, the APGAR Score must be determined by an impartial observer and not by an individual directly involved in the delivery resuscitation of the infant.

Priorities in initiating resuscitation of depressed infants are familiar A, B, C, D, Es of resuscitation:

Airway
Breathing
Circulation
Drugs
Environment

TABLE 2

Necessary Equipment and Drugs in the Delivery Room

- A. Overhead Warmer or Heated Isolette
- B. Oxygen, tubing
- C. Suction Source (Wall, Delee, Bulb)
- D. Laryngoscope with Miller blades (size 0, 1; extra batteries, lights)
- E. Endotracheal tubes (internal diameter 2.5 mm-4 mm), stylets
- F. Infant masks, bags
- G. Umbilical catheters (Argyle — 3.5, 5.0 French)
- H. Stethoscope
- I. Sterile gloves, sterile blankets, tape
- J. Medications
 1. NaHCO₃
 2. Epinephrine
 3. Albumin, Plasmanate
 4. 5% or 10% Dextrose in Water
 5. 10% Calcium Gluconate
 6. Naloxone (Narcan)
 7. Vitamin K₁
 8. AgNO₃ eye drops
 9. Sterile water
- K. Syringes

Table 3 details the degree of resuscitation needed for normal (APGAR 7-10), moderately depressed (APGAR 4-6), and severely depressed (APGAR 0-3) infants. In general, normal infants need minimal intervention and in fact, may become iatrogenically depressed if they are manipulated excessively (e.g.,

deep suction.)

When a moderate or severely depressed newborn is identified, individuals resuscitating the infant should always consider the use of Naloxone (narcan) after establishing an airway and initiating breathing if the mother was administered a narcotic one to three hours

TABLE 3

APGAR Score	ABCDEs of Resuscitation Priority	Protocol for Management	pH
7-10 Vigorous	<u>Airway</u>	1). Maintain Temperature. 2). Gentle suction, mouth before nose unless meconium staining present. 3). Warm humidified oxygen, if needed. 4). Place on side, head slightly dependent	pH-7.25 and above
4-6 Moderately Depressed	<u>Airway</u>	1). Maintain Temperature. 2). Gentle suction, mouth before nose unless meconium staining present.	pH-7.1-7.2
	<u>Breathing</u>	3). Pass NG tube, bag with mask and bag. Listen and observe for adequate ventilation.	
		↓ Spontaneous breathing -Provide warm humidified oxygen. -Place on side, head slightly dependent. No response, or inadequate ventilation, or decreasing pulse rate ↓ Endotracheal intubation 40-50 gentle inflations/minute.	
	<u>Circulation</u>	4). If the heart rate is less than 100 despite adequate ventilation, proceed to cardiac massage, bicarbonate, and epinephrine infusion.	
0-3 Severely Depressed	<u>Airway</u>	1). Maintain Temperature. 2). Gentle suction, mouth before nose unless meconium staining present.	pH-6.9-7.0
	<u>Breathing</u>	3). Pass NG tube, bag with mask and bag. Listen and observe for adequate ventilation.	
		↓ Spontaneous breathing -Provide warm humidified oxygen. -Place on side, head slightly dependent. No response, or inadequate ventilation, or decreasing pulse rate ↓ Endotracheal intubation 40-50 gentle inflations/minute.	
	<u>Circulation</u>	4). Institute cardiac massage if pulse remains below 100 or is decreasing with adequate ventilation. Exert pressure on midsterum-120-140 beats/min. Synchronize with breathing 3-5 beats/breath	
	<u>Drugs</u>	5). Place an umbilical venous or arterial catheter - a). Sodium Bicarbonate- 2-4 mEq/kg (diluted 1:1 with sterile H₂O) q5-10' - b). Epinephrine- 0.5-2cc (1:10,000) q 5-10' if bradycardia persists - c). Glucose- 0.5-1gm/kg preferably as 5% or 10% dextrose - d). Albumin- 1 gm/lg as 5-10% albumin diluted in Ringer's lactate - e). Calcium- 1cc/kg of 10% calcium gluconate if poor response to epinephrine	
	<u>Environment</u>	6). Maintain a natural-thermal environment. 7). Proceed to stabilize the infant. Specifically prevent: - Hypothermia - Hypotension - Hypoglycemia - Hypoxemia - Hypercarbia - Acidosis	

prior to delivery. Naloxone (Narcan) is an almost pure narcotic antagonist with virtually no narcotic agonist effect. It can be administered IV, SC, or IM (0.01mg/kg/dose), it acts rapidly, and it has no respiratory depressive effect.

Following the initial resuscitation of a depressed infant proper observation and therapy must be assured.

Depressed infants cannot be resuscitated and then forgotten since they go on to develop further problems secondary to their initial stress. Careful observation by trained observers and early stabilization (See Part II) can often prevent serious deterioration in an infant's condition.

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A Hospital Based Comprehensive Cardiac Rehabilitation Program

MICHAEL LIANG, PH.D.;* MARIO GARCIA, M.D.;* JOANNE ZEHNDER, R.N.;*
JAN BRIGUET, R.N.* and JOSE CANTO, M.D.*

PATIENTS HAVING MYOCARDIAL infarctions, coronary bypass surgery, or angina pectoris have benefited over the past decade from intensive efforts of cardiac rehabilitation in the hospital and comprehensive efforts of out-patient cardiac rehabilitation after discharge.

Over 80% of the patients who suffer from an acute myocardial infarction and live to be admitted to the hospital can be expected to survive with various degrees of cardiac functional impairment.¹ Approximately 45% of the patients hospitalized with an acute myocardial infarction are medically uncomplicated and therefore have a greater potential for full rehabilitation.² Patients who develop complications during hospitalization may or may not have this potential.³

The rate of recovery from a cardiac event and the restoration of maximal residual function depends on the severity of the disease, the adequacy of hospital care and the formulation of an appropriate plan to assess and manage the patient's illness. This plan is the central guide for rehabilitation both in the hospital and following discharge. The primary concerns are: (1) the recognition of the physiological and medical limitations imposed by the disease, and (2) the management of the psycho-social and vocational problems.

In an attempt to provide a service not readily available to the community, Divine Redeemer Memorial Hospital, South St. Paul, initiated a comprehensive cardiac rehabilitation program in September of 1975.

All cardiac patients must be referred to the program by their attending physicians. It is recognized as a cost-effective and legitimate medical service by all insurance companies in Minnesota.

The goals of the Divine Redeemer's Program are:

1. To restore the patient to optimal physiological, psychological, occupational and social status.
2. To provide exercise benefits by improving cardiovascular efficiency to perform work without symptoms and undue fatigue.
3. To provide psycho-social support and counseling for healthy life-style adjustment.
4. To provide patient/family education for the modification of

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major coronary risk factors and the understanding of the medical management plan.

The return of the cardiac patient to complete independence and productivity is not always possible. Nevertheless, the objectives include treating the disease; improving cardiovascular function and physical work capacities; restoring social, vocational, and family activities; and enhancing the mental outlook of the patient.

Phase I is an inpatient program which begins as soon as the patient's cardiac condition is stabilized. This phase of the program includes 14 steps of prescribed physical and day-care activities, plus continual basic patient teaching activities. Phase II is an outpatient program which begins within seven days of discharge. It consists of conditioning exercises, physiological and psychological measurements, patient/family education, risk factor modification and dietary and psychological counseling. The Phase II program requires attendance at the hospital-based clinic three times a week for a duration of 3 to 6 months.

Upon completion of the out-patient program, patients are introduced to the Phase III program which is conducted at a local community facility (supervised) or at home (self-monitored). The purpose of the Phase III program is to maintain cardiac fitness and to continue patient/family education.

From the cardiac patients admitted into Divine Redeemer's Coronary Care Unit 88% have been referred to the Phase I program and about 60% of these patients have been referred to the Phase II outpatient program by their attending physicians. Over the past three years, there have been over 300 patients admitted into Phase I and II programs from 49 physicians in the Metropolitan and Western Wisconsin areas. Over 150 patients are now in Phase III or a home program.

Over a three year period, the re-infarction rate has been 1.5% (3 patients) and cardiac mortality rate 3.1% (6 patients). The drop-out rate is 7.4%.

Within one year the return to work rate of the hospital's patients has been 91% which is the highest among cardiac rehabilitation centers reported around the country. One center in Australia⁴ has reported a

90% return to work rate after exercise rehabilitation. 85% of Divine Redeemer's patients returned to work between 2 to 6 months after being admitted into the Phase II program.

After 11,369 patient-hours of rehabilitation the following incidents during exercise training have been observed: 1 (.009%) ventricular fibrillation; 6 (.05%) ventricular tachycardia which spontaneously

converted into normal sinus rhythm; 1 (.009%) atrial tachycardia which was converted by inverted carotid sinus massage; and 1 (.009%) cardiac arrest which was successfully defibrillated.

In Seattle^{5,6} cardiac arrest rate was approximately 1 in 4,700 patient-hours (.021%) of exercise rehabilitation. Divine Redeemer's Cardiac Rehabilitation Program has been fortunate to have such a low rate

TABLE 1
Maximal Oxygen Uptake and Submaximal Work Capacity At The Same Heart Rate Before and After Cardiac Rehabilitation

Age	$\dot{V}_{O_2}$ max (ml/kg/min)*			Submax. Work Capacity (kpm/min)		
	Before	After	% Δ	Before	After	% Δ
< 50 Yrs.						
mean	32.36	37.14	14.75	499.29	608.57	21.89
sd	6.91	7.57		136.71	151.25	
n	18	18		21	21	
			p < .05			p < .05
> 50 Yrs.						
mean	28.36	34.69	22.30	452.14	574.75	27.12
sd	5.63	5.83		120.26	128.13	
n	22	22		45	45	
			p < .01			p < .001

* $\dot{V}_{O_2}$ max values were estimated from bicycle ergometer tests
sd = standard deviation
n = number of patients

TABLE 2
Body Weight and Body Fat Changes Before and After Cardiac Rehabilitation

Age	Body Weight (kg)			Body Fat (%)		
	Before	After	% Δ	Before	After	% Δ
< 50 Yrs.						
mean	80.27	79.22	- 1.31	21.42	20.55	- 4.06
sd	9.27	8.13	(NS)*	5.06	4.83	(NS)*
n	24	24		24	24	
> 50 Yrs.						
mean	81.23	80.12	- 1.37	23.70	22.56	- 4.81
sd	11.15	10.82	(NS)*	4.64	4.66	(NS)*
n	45	45		45	45	

*NS = Not Significant

TABLE 3
Total Cholesterol, High Density Lipoprotein (HDL), Low Density Lipoprotein (LDL), Triglycerides, Glucose, and Uric Acid Changes Before & After Cardiac Rehabilitation (average age = 54.8 years).

	Total Cholesterol			High Density Cholesterol			Low Density Cholesterol		
	Before	After	% Δ	Before	After	% Δ	Before	After	% Δ
mean	248.44	241.94	- 2.6	37.35	37.58	0.6	159.24	161.90	1.7
sd	54.22	44.98	(NS)*	11.87	10.00	(NS)*	42.63	39.52	(NS)*
range	149-334	170-365		21-69	24-69		97-234	127-281	
n	48	48		26	26		21	21	

	Triglycerides			Glucose			Uric Acid		
	Before	After	% Δ	Before	After	% Δ	Before	After	% Δ
mean	203.02	181.82	10.4	98.58	99.68	1.1	6.40	6.41	0.16
sd	113.52	118.56	(NS)*	11.55	13.28	(NS)*	1.46	1.55	(NS)*
range	76-724	76-756		78-133	87-138		3-9.7	4-10.1	
n	48	48		38	38		42	42	

*NS = Not Significant
sd = Standard Deviation
n = Number of Patients

of dangerous arrhythmia during exercise training and testing, and has encountered no cardiac arrest death in the clinic.

Divine Redeemer's exercise training modalities include: (1) arm-cranking, rowing, and a shoulder wheel which are designed to train upper extremities and torso; and (2) stationary bicycling, treadmill walking and step climbing which are used for conditioning lower extremities. Patients have benefited from complementary activities provided in the rehabilitation program, for example, patient/family education, dietary counseling, cardiac stress management and vocational counseling. The results obtained after patients completed the Phase II outpatient program are presented in Tables 1, 2, and 3.

Summary

The physiological effects of cardiac rehabilitation include (1) an overall 19% increase in maximal oxygen uptake level, (2) an overall 25% increase in physical working capacity, (3) an average 62% increase in cardiovascular functional capacity measured in METs, (4) substantial decrease in heart rate and blood pressure at rest and during submaximal exercise, (5) substantial decrease in rate-pressure product during submaximal

exercise, and (6) an average 6% increase in hand grip strength. Other psycho-social-vocational effects include:

1. 85% of the patients have returned to productive employment within 6 months; 91% of the patients are able to return to work (6.6% are employable).
2. 54% of the patients reduced working hours to an average of 40-45 hours per week.
3. 73% of the patients returned to their previous jobs without modification.
4. 60% of the patients with frequent angina pectoris reported less angina.
5. 81% of the patients with exertional angina have reduced the symptom.
6. 46% of the patients reported that their health had improved, 30% no change; and 24% worse.
7. 58% of the patients resumed or increased sexual activity and 88% felt that the quality of their marriage had improved.
8. No significant change in serum lipoproteins, glucose and uric acid levels were observed.
9. No significant reduction in body weight, fat content, or skinfold thickness was observed.

With proper application of the principles of exercise physiology and other allied health disciplines, one should not deny a disabled cardiac patient the opportunity to be rehabilitated to maximal residual function.

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patients. The older patient may have some disorder or socioeconomic problem that can undermine good nutrition.²

23,500,000 surgical

patients. Nutritional status can be compromised by the trauma of surgery; and some operations interfere with the ingestion, digestion and absorption of food.³



Before prescribing, please consult complete product information, a summary of which follows:

Each Berocca® Plus tablet contains 5000 IU vitamin A (as vitamin A acetate), 30 IU vitamin E (as *dl*-alpha tocopheryl acetate), 500 mg vitamin C (ascorbic acid), 20 mg vitamin B₁ (as thiamine mononitrate), 20 mg vitamin B₂ (riboflavin), 100 mg niacin (as niacinamide), 25 mg vitamin B₆ (as pyridoxine HCl), 0.15 mg biotin, 25 mg pantothenic acid (as calcium pantothenate), 0.8 mg folic acid, 50 mcg vitamin B₁₂ (cyanocobalamin), 27 mg iron (as ferrous fumarate), 0.1 mg chromium (as chromium nitrate), 50 mg magnesium (as magnesium oxide), 5 mg manganese (as manganese dioxide), 3 mg copper (as cupric oxide), 22.5 mg zinc (as zinc oxide).

Indications: Prophylactic or therapeutic nutritional supplementation in physiologically stressful conditions, including conditions causing depletion, or reduced absorption or bioavailability of essential vitamins and minerals; certain conditions resulting from severe B-vitamin or ascorbic acid deficiency; or conditions resulting in increased needs for essential vitamins and minerals.

Contraindications: Hypersensitivity to any component.

Warnings: Not for pernicious anemia or other megaloblastic anemias where vitamin B₁₂ is deficient. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with vitamin B₁₂ deficiency who receive supplemental folic acid and who are inade-

quately treated with B₁₂.

Precautions: *General:* Certain conditions may require additional nutritional supplementation. During pregnancy, supplementation with vitamin D and calcium may be required. Not intended for treatment of severe specific deficiencies. *Information for the Patient:* Toxic reactions have been reported with injudicious use of certain vitamins and minerals. Urge patients to follow specific dosage instructions. Keep out of reach of children. *Drug and Treatment Interactions:* As little as 5 mg pyridoxine daily can decrease the efficacy of levodopa in the treatment of parkinsonism. Not recommended for patients undergoing such therapy.

Adverse Reactions: Adverse reactions have been reported with specific vitamins and

1,000,000 hospital patients with infections.⁴ Many are anorectic and may have a markedly reduced food intake. Supplements are often provided as a prudent measure because the vitamin status of critically ill patients cannot be readily determined.³

The incalculable millions on calorie-reduced diets. Patients ingesting 1000 or fewer calories per day could be at high risk because this intake may not supply most nutrients in adequate amounts without supplementation.⁵



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patients, has virtually no odor or aftertaste and is economical. And its "Rx only" status means more physician involvement, better patient compliance.

References: 1. Shaw S, Lieber CS: Nutrition and alcoholism, chap. 40, in *Modern Nutrition in Health and Disease*, edited by Goodhart RS, Shils ME. Philadelphia, Lea & Febiger, 1980, pp. 1220, 1237. 2. Watkin DM: Nutrition for the aging and the aged, chap. 28, in *Modern Nutrition in Health and Disease*, op. cit., p. 781. 3. Shils ME, Randall HT: Diet and nutrition in the care of the surgical patient, chap. 36, in *Modern Nutrition in Health and Disease*, op. cit., pp. 1084, 1089, 1114. 4. Dixon RE: *Ann Intern Med* 89 (Part 2): 749-753, Nov 1978. 5. Committee on Dietary Allowances, National Research Council: Recommended Dietary Allowances, ed 9. Washington, National Academy of Sciences, 1980, p. 13.

minerals, but generally at levels substantially higher than those in Berocca Plus. However, allergic and idiosyncratic reactions are possible at lower levels. Iron, even at the usual recommended levels, has been associated with gastrointestinal intolerance in some patients.

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Minnesota Medical Association

What's the Hubub about Phase IV?

GEORGE C. LOHMER, JR.* and CAROL J. KAEMMERER†

The "Phase IV Report on General Acute Inpatient and Specialty Services" which is causing considerable controversy in the metropolitan area is part of a larger project agreed to in 1976 by the Metropolitan Health Board and hospital trustees. The hospital long range planning project was designed at that time to include a "phased approach" to hospital bed reduction as a health care cost containment effort. The four phases are characterized below:

Phase I — Submission of long range plans by hospitals.

Phase II — Voluntary reduction of beds by hospitals based on a formula.

Phase III — Recommendations by the Metro Health Board for the consolidation of certain specialized services (cardiac catheterization, open heart surgery, pediatrics, perinatal, megavoltage radiation therapy, CT scanning).

Phase IV — Recommendations by the Metro Health Board for the completion of voluntary reduction of hospital beds, consolidation of additional specialized services (trauma care, spinal injury care, Medical Resource Center, burn care, poison information and treatment) and recommendations for the merger, consolidation or phasing-out of entire hospitals.

Phases I — III have been completed. However, compliance with the Metropolitan Health Board's recommendations by area hospitals has not been consistent or overwhelming. The Phase IV Report expands on the previous phase by making additional recommendations on specialized services, developing findings of fact for each hospital about their delivery of acute inpatient services, and developing nine models which project what the hospital system could look like by 1983.

Many community leaders have attributed the increasing community controversy about Phases III and IV to a failure by the Health Board to evaluate the effects of the hospital long range planning process on the community to date. These leaders contend that their agreement to the hospital long range planning project in 1976 was contingent on an evaluation slated to come

after Phase III which would indicate whether the phased approach should continue, or whether a new course should be pursued in the interest of containing health care costs in the Twin Cities. While several community leaders have contended that the Health Board has not followed through on its agreement with the community, Barbara O'Grady, Chairperson of the Health Board indicates that the MHB is continually "evaluating" through the collection and analysis of hospital data. As the stakes become higher, there is increasing community concern that the Health Board is urging considerable changes in the health care system with very little data to justify such a move, and without specific projections about the savings that could be anticipated if the changes were implemented.

What Does The Phase IV Report Say?

The first five chapters of the Phase IV Report provide an historical view about various inpatient services, and information about the services available at each of the hospitals in the Twin Cities area. These initial chapters provide information which could be useful to consumers and providers alike as they make decisions about their own use of the health care system.

Chapters Six and Seven are considerably more controversial. Chapter Six provides "current assessments" of specialized hospital services — that is, the Health Board's own assessment of the services which are "compatible with the Metropolitan Health Systems Plan guidelines and goals", and by implication, which services should be consolidated, merged, or closed. The Physicians Metro Health Force has had a continuing concern with the categorization of pediatric and perinatal services as specialized services. Contending that general pediatric and perinatal services should not be viewed in the same way as computed tomography services, open heart surgery and cardiac catheterization, the Physicians Metro Health Force holds that these services are "core" hospital services. That is, they are services which generally deal with conditions which have high incidence and prevalence and which are necessary to treat the majority of residents in a community service area. The PMHF contends that the availability of core hospital services is a decision of the hospital trustees.

Chapter Seven sets forth nine alternative models for reducing 2,000 hospital beds which have been

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identified by the Health Board as the "excess capacity" within the Twin Cities' hospital system. Each of the nine models is based on varying assumptions and generates a different configuration of hospitals which could exist in 1983. The hospitals most frequently cited to lose all or a large portion of their acute care beds are Lutheran Deaconess, Mount Sinai, Golden Valley, Mounds Park, and Samaritan.

Some Health Board Members Dissent

Not all of the members of the Metropolitan Health Board are in agreement with the Phase IV approach. Two vocal opponents on the Board are Richard L. Gunderson, a consumer member from St. Paul, and Paul F. Bowlin, M.D., of Minneapolis. Both have issued public statements.

Mr. Gunderson spelled out some of his concerns with the direction of current Health Board efforts in a letter to Barbara O'Grady dated August 7, 1981, in which he announced his resignation from his position as Vice-Chair of the Board. In his letter, Mr. Gunderson stressed his concern that the Health Board might preclude effective marketplace mechanisms in health care by eliminating a key ingredient to competition — excess capacity. He urged the Health Board to conduct the evaluation which they had made a commitment to hospital trustees to do. He criticized the attitude that the "means are more important than the end", and the reduction of beds for their own sake. He noted that the drive to implement a plan which goes beyond the present feeling of the community comes at the expense of other opportunities. Finally, he expressed concern over an "elitist" attitude among some staff and members of the Board.

"It's terribly dangerous for a handful of persons to feel that they alone are the guardians of public interest. Despite the open and public process we (the Health Board) have, I feel MHB is losing touch with the community it serves."

Dr. Bowlin issued a "Dissenting Opinion" to the Phase IV Report on June 23, 1981. He made recommendations regarding a number of changes that should be made throughout the document. Key among the concerns he expressed is that through the Phase IV Report the Health Board is espousing a "bigger is better" concept. In his Dissenting Opinion, Dr. Bowlin asserted:

"Utilizing volume as the proxy indicator for cost, quality, education, and other factors skews the findings of the (Phase IV) Report in favor of larger hospitals. Has the Health Board seriously discussed this impact? Is it the intention of the

Health Board to eliminate the diversity and flexibility of the hospital system with regard to the size, scope of services, and intensity of care? I recommend that the Metropolitan Health Board thoroughly consider and support policies which encourage a cost-effective heterogeneous hospital system."

Dr. Bowlin also urged that Chapter Seven of the Report be modified substantially to deal with configurations of future hospital delivery systems from a policy perspective. This more flexible approach, Dr. Bowlin noted, would provide guidance to the entire hospital system without prejudging and therefore predisposing the outcome for any particular hospital.

Community Reaction To Phase IV

What has been interpreted in the community as the Health Board's pronouncement that certain hospitals should close has created significant problems for health care consumers, physicians, and hospitals. Concern was first generated by the wide publication of lists of hospitals from early drafts which categorized hospitals as competitive, less competitive, least competitive, and at risk. While successive drafts were less inflammatory in tone, they were no more satisfactory to significant segments of the health care community.

Patients whose physicians indicate that they should be admitted to one of the adversely named hospitals have had serious concern about the quality of care they will receive and about their physicians' judgement. Some physicians may be influenced to change their admitting patterns accordingly. To maintain patient volume and to support their medical staff, several adversely affected hospitals have embarked on major media campaigns to "tell their story" to the community.

Three lawsuits have been filed against the Metropolitan Health Board in federal court. Golden Valley and Mount Sinai hospitals each filed separate suits, and a joint suit was filed by Divine Redeemer, Lutheran Deaconess, St. Joseph's and Samaritan hospitals (Divine Redeemer later withdrew). The lawsuits allege that the Phase IV hospital long range planning process is a de facto Appropriateness Review process. The suits also allege that the Health Board actions and recommendations regarding Phase IV amount to regulatory confiscation by a government agency without due process of law, and unfair and deceptive trade practices. The suits filed by Mount Sinai and Golden Valley also allege that the Health Board's actions violate sections of the Sherman

(anti-trust) Act. Other legal actions have been contemplated by hospital chains and provider organizations.

The Health Board has responded that hospitals are criticizing a long range planning process they requested in the first place. The MHB's brief states that hospitals have a duty to fulfill their commitment to the long range planning process before they are allowed to bring suit. The Health Board also asserts that the hospitals were allowed input throughout the process.

The Physicians Metro Health Force Board acted on July 16, 1981, to recommend to the Board of the Minnesota Medical Association that the MMA file an *amicus curiae* brief. The Minnesota Medical Association has sought legal advice in this regard and is still considering its legal options.

The Physicians Metro Health Force and the Minnesota Medical Association each presented testimony at the Phase IV public hearing in November. The Physicians Metro Health Force stressed its concern with the concepts contained within the Phase IV Report. The PMHF also asserted that the findings of the report are biased in favor of larger hospitals by the use of volume as a proxy indicator for cost, quality, education, and other factors, and that moving the

health care system toward larger hospitals is not in the best interests of our community. PMHF Chairperson, A. Stuart Hanson, M.D. noted that "diversity, rather than homogeneity in the hospital system will increase flexibility and responsiveness to diverse community needs. This is especially true in a time of change and uncertainty." The Physicians Metro Health Force also challenged the assumption that substantial savings will accrue from the closing of hospitals, services, and beds. The PMHF asserted that the Health Board has very little empirical data to substantiate its approach, and that more recent studies attribute very small savings to the elimination of excess hospital capacity. Further, the reduction of all excess capacity is antithetical to competitive approaches for reducing costs in the health care system.

Other community organizations critical of the Phase IV Report at the November public hearing were the Council of Community Hospitals, the West Metro Hospital Trustees Council, the East Metro Hospital Trustees Council, and the Minnesota Coalition on Health Care Costs. Mount Sinai requested the opportunity to provide fifteen hours of testimony at the hearing.

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Minnesota Medical Association

1982 MMA ANNUAL MEETING

May 26-28, 1982

(Wednesday-Friday)

Radisson South Hotel, Bloomington

Highlights of the Month

Each month this page will highlight a different aspect of the 1982 Scientific Program and one or more of the special events planned in conjunction with the Annual Meeting.

Scientific Program: Thursday and Friday, May 27-28

Participants in the 1982 Scientific Program will have the opportunity to become well grounded in the basics of **hypertension**, one of the four major themes of the Program. **Ray W. Gifford, M.D.**, will be the featured guest speaker. Dr. Gifford has been nationally known for his valuable contributions to the diagnostic and therapeutic aspects of hypertension for more than 25 years. He is the Head of the Department of Hypertension and Nephrology, Cleveland Clinic Foundation.

Dr. Gifford will participate in a Friday morning plenary session on "**The Pharmacological Aspects of Hypertension**" and a breakout session that afternoon on "**Complications in the Management of Hypertension**," directed by Alexander Schirger, M.D., Rochester. Both these sessions are being sponsored by the Minnesota Chapter of the American College of Physicians.

One of Thursday afternoon's breakout sessions will be devoted to "**The Effects of Hypertension on the Heart**." This session has been organized by Brian Campion, M.D., St. Paul.

Other Planned Topics: Breast Cancer — Psychosocial Problems of Cancer Patients — Nutrition and Cancer — Quality Assurance for Ambulatory Patients — Computers and Medical Practice — Microcomputer Workshop — Effective Use of Clinical Resources — Endurance Athletics — Youth Sports — Physician's Role in Amateur Athletics — Casting and Splinting Workshop — Blood Banking — Medical Malpractice — Neonatal Resuscitation — Chemical Dependency — Sleep Disorders — CPR

Special Events: A Gala Evening at the Old Log, Thursday, May 27

A new format will be tried this year in place of the traditional Banquet. Your Local Arrangements Committee has arranged for the 1982 President's Reception and awards presentations to be held at the Old Log Theater in Excelsior, Minnesota. Those joining in the festivities need not make the drive to Excelsior; chartered bus transportation will be provided. Champagne will be served en route!

The President's Reception will be held at the Old Log, followed by dinner. Award presentations will be made in the theater after dinner. The evening will end with a production of one of the latest Broadway comedies for the exclusively MMA audience. Bus transportation back to the Radisson South Hotel will be provided. Tickets may be purchased with Annual Meeting registration materials to be mailed in early March.

Future Announcements in MINNESOTA MEDICINE and NEWSPAGE to include more highlights of the 1982 Annual Meeting.

For further information on the Annual Meeting, contact:

Department of CME & Program Services
Suite 400, 2221 University Avenue SE
Minneapolis, Minnesota 55414
612/378-1875

Minnesota Medical Association

from

Division of Socio-Economic Affairs

Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Charles W. Wiger, Director, Department of Legislative Affairs

Department of Medical Services and Research

HECAPP/Medicaid Reimbursement

Approximately four years ago, a number of different health care payors (c.f. representatives from the Minnesota Department of Public Welfare, Blue Cross Blue Shield of Minnesota, and Travelers-Medicare) and a number of health care providers (c.f. representatives from the Minnesota Medical Association, Hennepin County Medical Association, and Ramsey County Medical Society, Minnesota Hospital Association, and clinic managers associations) formed a discussion group and called it HECAPP. The acronym stands for health care payors and providers. The organization is strictly voluntary. It is unique in the country because it brings together two groups that are often viewed as adversaries because they appear on opposite sides of various issues from time to time.

The main purpose of the informal group is to share technical reimbursement/claims processing information to expedite the smooth operation of various publicly funded health programs, like Medicaid and Medicare.

At the last HECAPP meeting, staff from the Minnesota Department of Public Welfare (DPW) informed the group that DPW has prepared an individual listing of customary charges for physicians who are Medicaid providers. These allowances are the median charges based on the physicians submitted charges from calendar year 1979. If you are a Medicaid provider, your business office manager should have received the listing in early December, 1981.

The list is important because it will allow you to compare your 1979 individual customary charge with the other factors listed below which determine what DPW's reimbursement will be for various procedure codes.

Reimbursement for services provided to Medicaid Assistance recipients (program 2 and 8) after 07/20/81 will be based on the lower of:

1. The physician's submitted charge.
2. The 1979 50th percentile prevailing charge of statewide physician's charges.
3. The physician's 1979 individual customary charge as listed on the communique from DPW.
4. Medicare's 75th percentile of 1980 for appropriate procedures.

Reimbursement for services provided to General Assistance recipients (program 5) after 07/01/81 will be based on the lower of:

1. The submitted charge.
2. The 1978 50th percentile prevailing charge.
3. The physician's 1978 individual customary charge which was used in reimbursement for all services rendered prior to 07/01/81.

If you or your clinic/office manager have questions concerning the reimbursement you receive from DPW, please indicate your provider number and direct your inquiries to: Customary Charge Data, Minnesota Medical Assistance, P.O. Box 43170, St. Paul, Minnesota 55164.

Department of Health Planning

Competition Recommended as Solution to Health Care Costs

Two public interest groups in Minnesota have recently issued reports recommending increased price competition rather than regulation as a major strategy for containing health care costs. The Minnesota Coalition on Health Care Costs, an organization formed as an outgrowth of the MMA's Commission on

DIVISION OF SOCIO-ECONOMIC AFFAIRS

Health Care Costs, addressed four areas of concern in its report issued in November 1981: the relationship of supply to demand, the role of buyers, the role of providers, and health planning. The Coalition urges that policy makers focus on the demand for rather than the supply of health care services in their search for health care cost containment solutions. Key elements of the demand-side strategy identified in the report are: knowledgeable buyers of the service, information about the price of services from the provider, and multiple choices among health plans made available by employers. The Coalition urges that the employer and employee share the costs of the health plan as an incentive to the employee for making a cost-effective selection among available plans.

The Coalition urges that health planning not be eliminated, but that it be done voluntarily by the public and private sectors. Noting that Certificate of Need is a "distinct barrier to market entry", the Coalition report states that "new innovations and alternative facilities should be permitted and encouraged."

Ingredients of an ideal competitive market identified by the Coalition are: (1) an effective and fair price mechanism, (2) ease of entry by competitors into and out of the market, (3) non-collusive behavior among competitors, (4) competition at all levels of the marketplace, (5) adequate consumer information, and (6) a supportive tax structure.

The Citizens League, a Twin Cities-based public interest and research organization, issued a report in September 1981 which indicates that rising health care costs are attributable to market failure. The League's report outlines a strategy which calls for new roles for consumers, providers, and the Metropolitan Health Board. The League calls on all providers to voluntarily release price and quality data. Employers are urged to offer a choice of insurance plans which would contain rebates for those who choose lower-cost facilities and out-of-pocket costs to those who choose more expensive health care.

The League recommends that Certificate of Need be phased out. In its place, they recommend that the Metropolitan Health Board determine the ability of a proposed facility to receive a public subsidy through tax exempt financing.

The MMA Ad Hoc Committee on Health Care Competition and Regulation is considering these reports, among others. The Committee expects to recommend positions on health care competition and regulation for MMA Board action in April 1982.

Department of Legislative Affairs

Help Determine the Future of Medicine in Precinct Caucuses

Physicians in Minnesota have a unique opportunity on February 23 to influence the future direction of medicine. Every election precinct meets by political party in caucus to elect officers and develop party policy. Policies of the statewide political parties begin at the local level on February 23.

An additional benefit is the opportunity to meet your elected officials and those candidates wishing to be elected in November. Attending your precinct caucus announces to these people your interest and dedication to the American political process.

All precinct caucuses will be convened at 8:00 p.m. on February 23, 1982. Notices concerning the location of the precinct caucuses are available at your county auditor's office and will be published in your local newspaper.

Anyone participating in a precinct caucus may offer a resolution for consideration. Consider introducing a resolution on an issue of concern to medicine such as maintaining access to health care for recipients of Medicaid or Medicare on adopting proper standards for health screening programs or any other issue of concern to you. Resolutions need not be written in formal language. Resolutions which are approved will be presented to the county/legislative district convention for consideration. If approved, the resolution goes on to the congressional district convention and the state convention where the party platform is finalized. Department of Legislation staff would be pleased to assist members in developing resolutions and providing supporting documentation.

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

February, 1982

13 Perinatal Conference; St. Mary's Hospital; Radisson Duluth Hotel; CONTACT Karen Alseth, St. Mary's Hospital, 407 E. 3rd St., Duluth, MN 55805, 218/726-4430.

15 & 17 Basic Cardiac Life Support Courses; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

15-22 Minnesota Psychiatric Society; Mexico City; CONTACT Mrs. Patricia Rowe, 1770 Colvin Ave., St. Paul, MN 55116, 612/698-1971.

16 Dermatology; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT Mark Muesing, M.D., 303 Kingwood Brainerd, MN 56401, 218/829-3568.

16 Pediatrics; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

16-March 2 TRAVEL MEDICAL SEMINAR; NORTH CENTRAL MEDICAL CONFERENCE; South America (tour package); CONTACT North Central Medical Conference, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

25-26 ENT Problems in Your Office; U of M Medical School; Sheraton Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-March 6 RHEUMATOLOGY SEMINAR IV; MINNESOTA MEDICAL ASSOCIATION; Captiva Island, Florida (tour package); CONTACT Teresa Rogstad, MMA, Suite 400, 2221 University Ave. SE, Mpls., MN 55414, 612/378-1875.

March, 1982

3-4 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

4-5 The Cardiac Patient and Sexual Rehabilitation; American Heart Association, MN Affiliate; Minneapolis; CONTACT Diane Campbell, 2630 University Ave. S.E., Mpls., MN 55414, 612/376-7520.

4-6 Cardiopulmonary Medicine; St. Paul Ramsey Medical Center; St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

5 Neonatal Resuscitation; North Memorial Medical Center; NMMC, Mpls.; CONTACT Milton E. Baker, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5565.

10 Dermatology; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT Mark Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

11-12 Current Concepts in Perinatal Medicine; U of M Medical School and St. Paul Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13-20 Mercy-Unity Winter Medical-Dental Seminar; Mercy Medical Center; Keystone, Colorado; CONTACT Joseph Cardamone, M.D., 4050 Coon Rapids Blvd., Coon Rapids, MN 55433, 612/572-4567.

15 & 17 Basic Cardiac Life Support; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

19 Symposium on Ethics; North Memorial Medical Center; NMMC; CONTACT Ivan Brodsky, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5661.

19-20 Pulmonary-Allergy Postgraduate Education Course; St. Louis Park Medical Center; Registry Hotel, Bloomington; CONTACT Elaine Anderson, SLPAC, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

26 Recurrent Lung Disease in Childhood; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

April, 1982

2 Psychiatry for Primary Care Physicians; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3 Minnesota Psychiatric Society; Sofitel, Mpls.; CONTACT Mrs. P. Rowe, 1770 Colvin Avenue, St. Paul, MN 55116, 612/698-1971.

14-16 Spring Refresher; Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington; CONTACT Chari Konerz; Suite 426, 2221 Univ. Ave. S.E., Mpls., MN 55414, 612/632-9559.

16-17 5th Annual Update in Practical Cardiology; Abbott Northwestern Hospital; CONTACT Robert Blomberg, M.D., 2727 Chicago Ave., Mpls., MN 55407, 612/874-4211.

17 Minnesota Society of Anesthesiologists; Hilton Inn, Mpls.; CONTACT David Byer, M.D., 200 1st St. S.W., Rochester, MN 55905.

17 Annual Pediatric Challenges for Primary Care Physicians; Minneapolis Children's Health Center; Children's Health Center; CONTACT Daniel P. Kohen, M.D., 2525 Chicago Ave. S., Mpls., MN 55404, 612/874-6238.

April 1982 (Continued)

19-20 Surgical Correction in Aphakia; U of M Medical School, Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

20 Medical Chest; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

22-23 Pediatric Days; Mayo Clinic/Mayo Foundation; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

23 Problems in Office Orthopedics; Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J.G. Brueggemann, M.D., 400 E. 3rd St., Duluth, MN 55805, 218/722-8364.

23 Minnesota Surgical Society; Mayo Clinic, 200 1st St. S.W., Rochester, MN 55905; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

29-30 Advanced Cardiac Life Support; Mercy Medical Center; MMC; CONTACT Gene Arel, Mercy Medical Center, 612/427-2200 Ext. 2365.

29-May 1 Allergy and Clinical Immunology; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

30-May 1 Dermatology Reviews; Mayo Foundation Mayo Clinic; CONTACT Mayo Clinic, 200 1st St. S.E., Rochester, MN 55905, 507/284-2085.

May, 1982

1 Advances in the Therapy of Diabetes Mellitus; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700 ext. 1117.

3-5 International Conference on Tissue Specific Antigens; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-7 Practice of Internal Medicine; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

5-6 Human Aging V; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

6 Spring Symposium; Rice Memorial Hospital, Willmar; Rice Memorial Hospital; CONTACT Steven Honebrink, M.D., 301 Becker Ave., S.W., Willmar, MN 56201, 612/235-4543.

7 Medical Directors Spring Meeting; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7-8 Ophthalmic Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

10-14 Family Practice Review; U of M Medical School; Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

19 Endocrinology; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

19-21 Current Concepts in Radiation Therapy; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

19-21 Update In Infectious Diseases; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

24-26 Topics and Advances in Pediatrics; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

26-28 Biotechnology Symposium; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-28 MMA SCIENTIFIC PROGRAM; Radisson South Hotel, Mpls.; CONTACT Teresa L. Rogstad, 2221 University Ave. S.E., Suite 400, Mpls., MN 55414, 612/378-1875.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

2-4 Coronary Heart Disease Workshop; U of M Medical School; Spring Hill Center, Wayzata; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9-11 Musculoskeletal Tumors; U of M Medical School; Sheraton-Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

11-12 Clinical Hypnosis; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

TO PROMOTE BETTER UNDERSTANDING

This code of interprofessional relations has been designed to promote better understanding between physicians and attorneys. If it is studied carefully and followed diligently by members of both professions, it should go far to eliminate the frictions that have arisen and to enhance the areas of understanding. Improvement of the relationship between the two professions will enable the two professions to progress together in their service to humanity and its individual members, whether of body, of mind, or to rights guaranteed under our system of justice.

INTERPROFESSIONAL RELATIONS

Physicians and attorneys, as members of learned professions have much in common. The state licenses the members of each profession to administer to the needs of the public to carry out social responsibility to the public. Each is dedicated to the principle of free choice — freedom of choice in the selection of a physician to safeguard the health of the individual, and freedom of choice in the selection of an attorney to safeguard an individual's freedoms and rights as a citizen. Each is bound by a code of ethics dedicated to the most worthy objectives inherent in the trust placed in each profession by the community.

The physician has responsibility for the care of his patient, not only in health but also in disease and injury. He is the advisor and confidant of his patient in matters of health. He must administer to the needs of his patient to the best of his ability and in accordance with the high precepts of the Hippocratic Oath.

The attorney represents his client as advocate in legal proceedings and as counsellor in business and personal affairs. He is the advisor and confidant of his client in legal matters. He performs his duties as an officer of the court sworn to support and defend the constitutions of the United States and of the state or states in which he is admitted to practice with high standards of conscience and morality.

The members of each profession are pledged to maintain the confidence and to preserve inviolate the secrets of their patients or clients.

Each profession is obligated by its own stature to respect and honor the calling of the other. Neither the fact nor the appearance of incompetence, corruption, dishonesty or unethical conduct on the part of individual members of either profession can be tolerated. It, therefore, follows that each profession must vigorously support within its own ranks, as well as within the ranks of the other, those ethical concepts which each has found necessary in the public good. But when doing so, the members of each profession must keep in mind that the members of the other profession have been found competent to be such by appropriate authority, that there are differences in the capacities and characteristics of the practitioners of the other profession and that while law and medicine may each be termed a science, each is an inexact science and such inexactness is and always will be accentuated by the human limitations of its practitioners.

This interprofessional code constitutes recognition that with the great development in the science and art of both medicine and law, physicians and attorneys are drawn into more and more associations, as the law calls with increasing frequency upon medicine for its scientific knowledge and its evaluation of facts so that the rights of individuals may be appropriately determined before various tribunals.

I. MEDICO-LEGAL ASPECTS BEFORE TRIAL

The physician becomes involved in the legal process either because he has been engaged for the purpose of diagnosis, care or treatment of some patient whose rights are being litigated or because he has been engaged for the purpose of litigation rather than for diagnosis, care or treatment. If he is a physician engaged for the purpose of diagnosis, care or treatment, he will be referred to herein as the attending physician, whether he was the physician who treated the pa-

CODE FOR INTERPROFESSIONAL RELATIONS

Approved at meeting of Legal Medical Comm. on 12/12/80

Approved by Board of Governors of MSBA on 3/28/81

Approved by the Minnesota State Medical Association
7/25/81

Minnesota State Bar Association
and
Minnesota Medical Association

ABOUT THE CODE

Quite a number of years ago (unfortunately no available record of either association discloses the date) a "Code of Professional Relations" was agreed to and adopted by the Minnesota State Bar Association and the Minnesota State Medical Association (now the Minnesota Medical Association). This document was revised on at least one occasion. (Again, available records do not disclose the date.) Both the original and the revised documents were out of date and out of print. The Legal-Medical Committee, working with the corresponding committee of the Minnesota Medical Association, updated the Code to the form presented here. This revised Code has been approved by the boards of both associations. It is being published here with the suggestion that it be detached and kept in a convenient place in your office or library. The document also is being made available to physicians. We hope it will help answer questions and lead to better understanding and more harmonious relationships between the two professions.

Gregg Orwoll, Past Chairman
Legal-Medical Committee

PREAMBLE

Acknowledging that a substantial part of the practice of law and medicine is concerned with the problems of persons who are in need of the combined services of an attorney at law (hereinafter called attorney) and a doctor of medicine (hereinafter called physician), and that the public interest and individual problems in these circumstances are best served by the cooperative efforts of all concerned, we, the members of the Minnesota State Bar Association and Minnesota Medical Association, do hereby adopt the following interprofessional code as the standard for proper, ethical conduct for lawyers and physicians.

ient during the entire course of his illness or injury or the physician called as a specialist with respect to certain aspects of diagnosis, care or treatment of the patient. If he is a physician engaged for the purpose of litigation, he will be referred to herein as the examining physician.

A. Professional Obligation of Physician to Patient in Regards to Litigation

The attending physician has a duty to provide to the patient's attorney medical reports concerning his findings, treatment and opinions. The attorney should request these in writing, specifying the facts and opinions in which he is interested. Also, the attending physician has an obligation, if asked, to testify as an expert witness.

These duties arise from the physician's general obligation to assist in the administration of justice. The administration of justice is essential to an orderly society. An effective system for settlement of claims involving the physical or mental condition of a person is essential to judicial administration. Disposition of such claims either by trial or in anticipation of trial must be based on facts relating to (1) liability and (2) damages. The physician, by virtue of the confidence reposed in him by his patient has unique knowledge of the physical and mental condition of his patient; the care and treatment required; and the degree of permanent loss, if any, to be anticipated. The issue of damages cannot be fairly resolved without these facts.

It is for the physician to determine the facts pertaining to his patient's condition. It is for the attorney to determine when, how and under what circumstances such facts are most appropriately to be presented.

B. Medical Conduct Before Trial

The information obtained by the attending physician in the course of his examination and treatment of a patient and any written report thereof are legally privileged, except that in situations involving the Worker's Compensation Act an attending physician may be required to testify as to any information acquired by him in the course of treatment or examination. The information obtained by an examining physician and any written report thereof are not privileged. Nevertheless, an examining physician should not reveal such information or the contents of such report to anyone other than the person employing him without first obtaining the written consent of such person.

Neither the attending physician nor the examining physician should express any opinion to the patient as to the settlement value of any claim for personal injury.

The examining physician, acting for a party adverse to the person he is examining, should, where taking a medical history, attempt to elicit only such facts as are pertinent to his examination; he should not attempt to obtain statements which might constitute admissions with reference to any accident out of which the litigation arises. Such an examining physician should not solicit the findings or the opinions of or consult with the attending physician, nor should he suggest to the person being examined any treatment, comment to such a person on any treatment already received, or divulge to such person any of his medical findings or opinions.

It is not desirable for an attorney to be present when his client is being examined by an examining physician whether the physician is employed on behalf of his client or on behalf of an adverse party, but there is no reason why the attorney should not discuss with such physician, either before or after examination, any aspect of the examination that may be pertinent.

C. Legal Conduct Before Trial

A frank discussion of the issues and opinions between the physician and the attorney prior to trial is to be encouraged. The attorney may properly point out the legal foundation for medical evidence and the reasons for it. This does not, however, mean that the physician's testimony must be in accord with these views, for an attorney by his conscience and his ethics is prohibited from attempting to color or distort the professional opinion of a physician to be called as

a medical witness in the trial of a case. Both the attorney and the physician must share the responsibility for improperly presented or fraudulent medical testimony. Such testimony is unworthy of both professions.

It is improper for an attorney to interfere with an established physician-patient relationship. However, if the attorney wants another opinion, it is proper for him to refer the patient to an examining physician. The employment of a physician, who does not involve himself in the treatment or referral of the patient, does not constitute interference with an established physician-patient relationship.

D. Medical Reports

The physician should always stand ready to furnish complete written reports to attorneys. This statement applies not only to examining physicians but also to attending physicians. The attorney when requesting a written report from a physician concerning the conditions of a patient should make his request in writing and should direct the physician's attention to the particular condition which interests the attorney.

The attorney should not expect the attending physician to furnish a report unless the physician has first received written authorization from the patient permitting the physician to furnish such a report, or unless the attorney's letter to the physician contains a signed acknowledgement by the patient of the attorney's authority to act in his behalf.

The physician has an obligation to keep adequate records which may be used to supply to a patient's attorney all information regarding the patient-client's medical history, and to retain control of x-rays.

Requests for medical reports should be honored promptly, since undue delay in providing medical reports or bills bearing on a patient's legal rights may prejudice the patient's rights.

If a physician is unable to state a complete medical evaluation and prognosis at the time it is required, he should so notify the attorney and suggest to him that the attorney request a further medical report at a later time. In such instances a preliminary report and medical bill, clearly designated as such, will often serve the patient's needs adequately.

E. Examination of Medical Records

Once an action has been commenced, present court rules require the physician to exhibit his records pertinent to the client to opposition counsel by appointment and upon his furnishing a written waiver of medical privilege.

F. The Interprofessional Conference

Personal conferences between the attorney and each physician, whether he be an attending physician or an examining physician, are always proper and generally should be regarded as professionally obligatory.

Conferences should be scheduled at mutually agreeable times and under circumstances so that they may proceed without interruption.

Several conferences may be necessary. An initial conference long prior to trial and in some cases even prior to the commencement of a lawsuit is often desired by the attorney so that he may be early apprised of the medical aspects of the claim, knowledge of which is, of course, essential to an evaluation of the claim. Interim conferences to discuss the patient's medical progress are often also necessary. If the physician is to be a witness, a final conference should be held as shortly before the physician is to give his testimony as possible.

At this conference the attorney should explain the legal aspects of the case and the facts he expects to develop; and fully and with complete candor the physician should explain the medical aspects of the case. If a hypothetical question is to be asked, the attorney should clearly outline it at the conference. The physician should review with the attorney at the conference all his notes, records, memoranda and x-rays even though he does not intend to use them in his

direct examination. The physician should volunteer any pertinent medical fact not previously discussed.

G. Arrangements for Medical Testimony

The attorney should make arrangements with the physician who is to be a witness, for the physician's appearance at a particular time and place and for the physician's testimony to be given as close to the specified time as possible. It is the obligation of the physician to be present at the specified time. The attorney should give the physician as much advance notice of the time as is reasonably possible, but the physician must realize that the attorney cannot control the court calendar and that unanticipated dispositions of preceding cases frequently prevent the attorney from giving as much advance notice as might be desired. Physicians should bear in mind that an attorney's time also represents the means for his livelihood and therefore the physician should attempt to eliminate unnecessary delays causing expenditure of the lawyers' time. When a case is settled, the attorney should promptly notify all physicians involved. Prompt notice is particularly important when a case is settled after a time for the physician's appearance in court has been set.

H. Subpoenas to Secure Medical Testimony

The attorney should make every effort to arrange for medical evidence without the use of subpoena. In the event a physician's testimony cannot be obtained by arrangement, the attorney may subpoena the physician. The physician must, if at all possible, appear at the time requested. If he cannot comply with the subpoena because of circumstances beyond his control, he should immediately notify the presiding judge who does have authority to release him from the subpoena and reschedule the physician's appearance for court or a deposition. In the event an attorney finds it necessary to subpoena a physician, the attorney should notify the physician in ample time, preferably in advance of service of the subpoena, of his intention and insert in the subpoena a time for appearance as nearly as possible acceptable to the physician.

A lawyer who subpoenas a physician should not expect the physician to bring with him his notes, records, memoranda and x-rays unless the physician has been served with a subpoena duces tecum.

Even though all physicians are experts in the eyes of the law, a physician can be compelled by subpoena to appear and testify upon tender to him of the statutory witness fees payable to any lay person who is subpoenaed. If a physician who appears in answer to a subpoena is examined with respect to any subject upon which he is an expert, the physician is entitled to be awarded a reasonable expert witness fee by the court.

II. THE MEDICAL WITNESS AT TRIAL

A. Appearance of Medical Witness

The proper, fair and impartial presentation of medical testimony is the joint responsibility of the physician acting as a medical witness and both examining attorneys.

The persons who are to hear and interpret the medical testimony (jury, judge, or other presiding official) must necessarily observe and consider the appearance of the witness and presentation of the testimony. A medical witness should maintain a professional attitude in his appearance and should present his testimony in language that a layman can understand.

Our system of justice assumes that medical witnesses as well as other witnesses are impartial as to the facts within their knowledge. They are not and should not be advocates. A dogmatic, uncompromising, and argumentative attitude assumed by a witness instead of a firm, but professional attitude based on honest convictions established on scientific principles, will work to the detriment of the witness.

An attorney should not engage in the abuse of any witness, including a physician. The established rules of evidence give ample opportunity for testing the competence and credibili-

ty of all witnesses, including a physician, making abusive examination on the part of an attorney unnecessary and unjustifiable.

The physician should realize that it is the privilege and obligation of the lawyer for the opposing side to conduct his cross-examination with vigor in an effort to explore the foundations of medical opinion and to expose weakness which may appear in either the basis or content of such opinions. The physician must realize that such cross-examination is most probably based upon contrary medical interpretation of the objective facts known to all. A refusal to tolerate or to recognize a contrary view will not be in the best interests of the administration of justice.

B. Medical Testimony

If requested by an attorney, a physician should bring with him to court all pertinent records with respect to the patient about whom he is testifying and may request that the hospital records with respect to such patient also be present in court. An attorney should not counsel against the production of such records. When preparing to testify or when testifying, a physician may examine such records to refresh his recollection. Once he has used them for such purpose, the attorney for the opposing party may examine them, too.

The qualification of a medical witness involves an inquiry into his medical education, post graduate training and research and his membership in various medical organizations. The physician should be prepared to give a resume of these professional qualifications without hesitation but without undue elaboration.

In the giving of testimony, the physician under no circumstances should permit any bias, prejudice, favoritism or personal interest to influence or affect his testimony. If the physician is asked a question to which he does not know the answer, he should so state and make no attempt to speculate or guess or theorize or give answers not responsive to the question propounded. A physician should not hesitate to express his opinions which are based upon a reasonable medical certainty. The medical witness is not required to exclude all doubts from his mind but may render his testimony as an opinion couched in expressions which fall short of an absolute conviction of accuracy. Simply because someone else might not agree with his opinions should not cause the physician to hesitate in expressing them. He must also remember that it is only fair that a contrary interpretation of the medical facts may exist and may be admitted. The physician must state his opinion if he has one. However, if he feels he is not qualified to give one, he should so state; and if he has no opinion, he cannot be compelled to give one.

Trials are conducted according to rules of evidence, and a physician may find that frequently during his testimony there will be objections. These objections by the attorneys are merely a request to the court to pass upon the materiality, the relevancy, or the competence of the testimony being offered. The court will rule according to the rules of evidence, and the decision will be made as to whether the testimony should be considered along with other evidence in the case. The physician should understand that objections are important and essential to protect the rights of the clients who are litigants.

It is frequently necessary to use hypothetical questions in eliciting testimony from medical witnesses. Such questions can be lengthy, troublesome and confusing if not properly prepared and presented. It is the attorney's obligation to present such questions so as to be free from ambiguities and to eliminate any possible misunderstandings. The medical witness in attempting to answer the question, must, of course, be sure that he understands all of its elements and that they are sufficient and complete enough so that he can properly predicate his opinion thereon.

C. Ethical Limits of Medical Testimony

It is a rare occasion when intentionally false or improper medical testimony is given in the trial of a case. However, it has occurred. Similarly, there are occasions when attorneys exceed the limits of propriety and attempt to introduce

improper medical testimony or attempt to influence the testimony of the medical witness.

Each of the members of both professions has a duty to satisfy himself as a matter of conscience and professional judgement that the person doing so has exceeded the limits of ethical medical testimony or ethical handling of medical witnesses, and, once doing so, has the obligation of reporting such activity to the appropriate organization within the profession which handles such matters.

The reputation of a professional person is his most precious and valuable asset. Therefore, the reporting of such improprieties against a member of one's own profession or against the member of another profession is a matter of great seriousness and calls for a high degree of discretion. It must be remembered that in an area such as medical testimony, there is a large degree of variance in opinions, and, in most cases, these opinions are based upon sound medical authority. The possibility of unintentional misstatements or misrepresentations also must be considered. Therefore, before any action of any kind is taken, the person doing so must be absolutely certain in his own mind and conscience that such action is warranted.

Conversely, it is just as serious to abstain from reporting such misconduct as it is to make a groundless charge. Therefore, when a member of either profession becomes convinced that such misconduct has occurred, it is his duty to report it.

III. COMPENSATION OF MEDICAL EXPERT

A. Medical Fees

1. **CONTINGENT FEES.** It is improper for the attorney and the physician, whether he be an attending physician or an examining physician, to enter into any arrangement making the payment of medical fees, or the amount thereof, contingent upon the outcome of the litigation. Fixed fees should be established prior to the examination or court appearance.

2. **ATTENDING PHYSICIAN.** The expense of care and treatment of the patient is the obligation of the patient, irrespective of the litigation or the outcome thereof. The attorney should not counsel his client against prompt payment of medical expenses incurred.

Unless the attorney informs the physician by express written statement at the time of the order or request that he will not be responsible for payment, the expenses incurred for preparation of medical reports, physician depositions, interprofessional conferences, preparation for and appearances in court requested by the attorney are obligations of the attorney in the first instance as litigation costs advanced by him. The charge made for the report shall be reasonable and commensurate with the time expended in preparing the report. A physician may properly request payment in advance of submitting his report.

It is improper for the attending physician to insist, as a condition precedent to his testimony, that the lawyer for the patient guarantee payment of an unpaid bill for medical services.

3. **EXAMINING PHYSICIAN.** The expense of an examination, including x-ray expense and similar costs necessary for a complete examination, medical reports, physician depositions and/or court appearances are the obligations in the first instance of the attorney requesting the same.

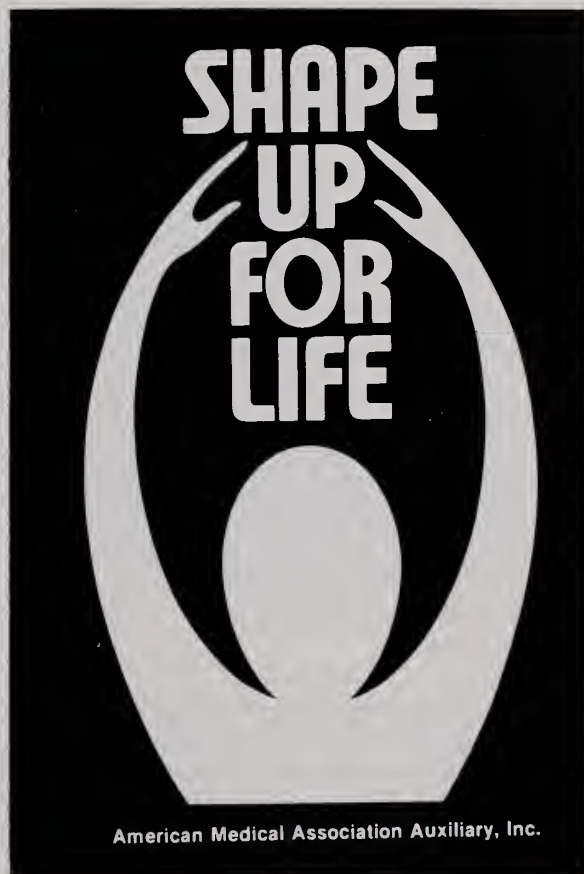
It is a proper and desirable practice that whenever an attorney refers a client to a physician for examination he should do so in writing, stating the purpose of the referral. If the attorney disclaims liability for the fee or if the physician doubts the attorney's credit, the physician may be justified in withholding his report until the fee is paid or in declining to testify until mutually satisfactory financial arrangements have been made.

Payment of the examining physician's fee should be made promptly upon completion of his services. Delay in the final disposition, such as appellate procedure, is not sufficient reason for an attorney to delay payment.

Court Appearances. A physician's fee for court appearance and preparation for the same is based not only upon the time expended on behalf of the client but also on his inability to schedule office and surgical appointments during the estimated court time interval. In arranging for the court appearance, it is essential that the physician and attorney reach a clear understanding concerning any fees for the physician's appearance or non-appearance in the event of any continuance or cancellation. In the absence of such understanding, it is recognized nevertheless that the physician is entitled to charge a reasonable fee for his preparation time and his scheduled appearance time. In the latter instance, the physician is entitled to be indemnified for any economic loss to his practice occasioned by a continuance or cancellation prior to any actual appearance by him.

B. Professional Obligation of Attorney to Protect Physician for Fees on Services Rendered

In the event of recovery, the attorney has an obligation to use all reasonable measures to assure payment by the client of the statement for services of the attending physicians, not only for the court appearance but also for services rendered. Whenever possible, unpaid statements should be satisfied as part of the process of distributing funds recovered in the litigation. An attorney unable to make arrangements for satisfaction of unpaid medical bills should promptly notify the physician of such facts.



Classified Advertisements

Classified advertising rates are forty (40) cents a word; minimum monthly charge \$10.00, key number, \$2.00 additional. Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, 2221 University Ave. S.E., #400, Minneapolis 55414.

Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

GENERAL OR FAMILY PRACTITIONER needed as a third doctor in a progressive and stable agricultural city in southwest Minnesota. Tracy has good schools and a modern-well-equipped 35-bed hospital. It's 12 miles from the state park and 22 miles away from a university town. Busy practice opportunity with 15,000 population coverage. Send resume to Wilfredo P. Apostol, M.D., Tracy Medical Clinic or contact hospital Administrator, Omer Eischen, Tracy, Mn. 56175.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

ALLERGY AND ENT

specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

NEUROLOGIST AND PSYCHIATRIST to join a multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality benefits. Send curriculum vitae and references to P. K. Olson, M.D., 101 Willmar Avenue, Willmar, MN 56201.

WANTED: GP to join rural practice located 30 miles from Grand Forks, N.Dak. Call (218) 745-4151. W.A. Pinsonneault, MD, P.O. Box 107, Warren, MN 56762.

FAMILY PHYSICIAN to provide medical care for Kenyon, Minn. Our Clinic will work with you, either through affiliation and rotation in call schedule, or loose working arrangement, to provide back up and vacation coverage. Modern, well equipped clinic building available. For further information contact Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd., 924 N.E. 1st Street, Faribault, Minnesota, 55021.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

FAMILY PHYSICIAN: Small consumer-owned, family practice-oriented HMO needs a board certified (or eligible) family physician to join 3½ family physicians and ½ pediatrician in providing primary care to a growing membership. Enjoy the opportunity of complete family practice, including obstetrics, free of the hassles of private practice, in St. Cloud, MN, a growing area of 50,000 with 3 colleges, 70 miles northwest of Minneapolis. Contact Gary Strandemo, M.D. or Sharon Seivert, Executive Director at Central Minnesota Group Health Plan, 1411 St. Germain, St. Cloud, Minnesota, 56301 or phone 612-253-5220.

Classified Advertisements

PSYCHIATRIST interested in child and adult psychiatry needed in Bemidji, Minnesota. Private practice or joining a 20 man multispecialty clinic next to a new 92 bed hospital is possible. Salary offered with clinic, \$50,000 plus incentive. Ideal for the individual looking for outdoor activities during all four seasons, State University located in Bemidji. Approximate trade area of 70,000. Contact D.E. Carlson, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601.

OPPORTUNITY FOR QUALIFIED physician in Otolaryngology and Orthopedic Medicine. The clinic is also recruiting for a country family physician (2) for an outlying branch clinic in New Richland, Minnesota and Alden, Minnesota. The Albert Lea Clinic, P. A., is a 17 man multispecialty group in primary and secondary care fields. Financial rewards are exceptional and practice challenges very attractive. Negotiated top salary first year. Senior physician participation beginning at the end of the first year and incentive income distribution plan. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. This is a choice practice in an exceptional place to live. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

MEDICAL CLINIC for rent, lease or for sale with or without attached garage and house. Offers accepted. Total square ft. of clinic 1,873 sq. ft. waiting area, 375 sq. ft. Clinic has 2-bathrooms, lunch rooms, Xray room, two labs with storage. 1-room for records, 4-examining rooms, 2-offices, 1-room for receptions — house has 2 car garage, 1-single garage. Large finished porch, large living room, large recreation room, 3-fireplaces. Laundry, den, kitchen, breakfast nook, private office room, 3-bathrooms, 4-bedrooms. Full basement, call or write Mr. & Mrs. Milton E. Olson, 209 So. Main St., St. Michael, MN 55376. Ph: 1-612-497-2383.

SPECIALTY PRACTITIONERS — Good opportunity for Psychiatrist, General Surgeon, Internist with Cardiology interest, and Orthopedist. Eight Family Practitioners available for referral. JCAH Accredited 103 bed modern hospital. Up to date staff and equipment. Solid, quiet community-25,000 people in service area. Good schools. Pleasant, safe life style. 40 miles equidistant to Madison or Milwaukee via Interstate highway system. Contact Leo Bargielski, Administrator, Watertown Memorial Hospital, Watertown, Wisconsin, 53094-9990.

GENERAL SURGEON to join multispecialty staff of Twin City HMO, January 1982. Competitive salary and benefits. Contact: Richard Webber, M.D., Medical Director, SHARE Health Plan, 555 Simpson St., St. Paul, MN 55104; phone 612-645-0171.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For information, mail your C.V. to: Medicus, W62 N281 Washington Ave., Cedarburg, WI 53012.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

OBSTETRICIAN-GYNECOLOGIST interested in part-time consulting in the Twin Cities Metropolitan and surrounding areas. University trained, Diplomate, American Board of Obstetrics and Gynecology. Fellow, American College of Obstetrics and Gynecology. Contact Lori 871-7331.

GROW WITH US IN THE SUNBELT — The INA Healthplan needs physicians in family practice and most specialties in Miami, Tampa, Dallas, Phoenix, Tucson and Los Angeles. Attractive salaries and comprehensive benefits including professional development, retirement, and profit sharing programs are provided. If team interaction and casual living interest you, send a brief CV to Medical Administration, INA Healthplan, Inc., 7616 LBJ Freeway, Suite 303, Dallas, Texas 75251.

(Continued on Page 128)

Classified Advertisements

(continued from page 127)

FIFTY PHYSICIAN multi-specialty clinic in west central Wisconsin wants cardiologist (non-invasive), neonatologist, neurologist, neurosurgeon, orthopedic surgeon, and otolaryngologist. Excellent cultural, educational, and recreational facilities. 90 miles from Minneapolis. Please contact James R. Jepson, Administrator, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5266.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

FAMILY PHYSICIAN wanted for hospital, nursing home, and large well equipped outpatient clinic. Harmony is located in the Southeastern part of Minnesota's beautiful Hiawatha River Valley, 50 minutes from LaCrosse, Wisconsin, and three hours from the Twin Cities. Salary and benefit open to negotiation. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, Minnesota 55939 or Phone 507-886-6544.

ADMINISTRATOR/MANAGER — medical group, Twin City metro or suburban area. Excellent qualifications, experience and references. Gene Inett (612) 464-4858.

WINONA, MINNESOTA — Family physicians needed for this community of 26,000 nestled in the bluffs on the banks of The Mississippi. Office space available in new Medical Office Building adjacent to 134-bed Hospital. Package may include office staff and equipment as well as rent-free office space. May join another family physician in practice. Call sharing arrangements available. Opportunity to practice wide range of family medicine, including obstetrics. Two hours south of Twin Cities. Contact Tom Campbell, Fox Hill Associates at 414/785-6500 collect.

FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D., or Albert M. Sheldon, III, M.D. Winsted Clinic P.A., Winsted, MN 55395 1-612-485-4151.

GENERAL SURGEON to join 11 member primary care group. 8 Family Physicians, 2 Internists and 1 General Surgeon. Recently remodeled and expanded clinic facility, 6 blocks from modern, well equipped 99 bed hospital. Rural Community 45 minutes south of the Metro area on 35-W. Salary guarantee first year. Contact: Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd. 924 N.E. 1st Street, Faribault, Minnesota 55021.

WANTED: Family practitioner, internist, OB-GYN to join multi-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

FAMILY PRACTITIONER FOR progressive rural Minnesota primary care clinic wanted to replace one of the doctors who is leaving for professional advancement. A pleasant family-oriented rural community in a physician shortage area, yet only 25 miles from a major metro area (Fargo-Moorhead). Fertile agricultural area, by woods and lakes only 15 miles away. Young and growing practice, excellent salary and benefits. Call collect or write: Dr. Faris Keeling or Mr. David Nelson at Barnesville Area Clinic, Box 521, 209 2nd St. S.E., Barnesville, MN, 56514 (218) 354-2111.

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FOR SALE — "Original" Leica-M Camera (interchangeable close-up/long distance) System, for "collector" or (medical) photographer: Bellows, visoflex, 135mm f/4.5 lens. Marty Hillesheim, 1713 Woodland Rd., St. Cloud, Minn. 56301.

SEVEN COUNTY FAMILY practice group seeks associate to replace relocating member. Excellent local hospital. Proximity to Twin Cities. Salary with partnership after one year. Call J. R. Michell, M.D. or Gloria Vierling, Business Manager, Sundance Medical Clinic, Shakopee, MN 612-445-6440.

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CANADIAN HUNTING AND FISHING — Northwestern Flying Service caters to Professional Groups for the ultimate in Canadian Hunting and Fishing. Call our Minneapolis Office for information — 612-780-5664.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

PSYCHIATRIST — Consider an employment situation that offers: a competitive salary, a 40 hour week, malpractice coverage, 30 days paid vacation, and other excellent fringe benefits, in a JCAH accredited progressive medical center. The City of St. Cloud, Minnesota, and the surrounding area boasts of the high quality of family living that is afforded its residents, who enjoy clean air, easy access to a wide variety of four-season outdoor recreational opportunities, excellent educational facilities which include a State University, St. John's University and the College of St. Benedict, and a full range of services available in a metropolitan setting while maintaining the quality of suburban and rural living. St. Cloud is only 90 minutes from Minneapolis/St. Paul metropolitan area. License in any state accepted. Write: Chief of Staff, Veterans Administration Medical Center, St. Cloud, Minnesota 56301, or call the Personnel Service (612) 252-1670.

OB/GYN SPECIALISTS Enjoy the security of group practice with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

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PAUL — offers opportunities for full range family practice in suburban setting with five family physicians and positions in multispecialty clinics with no ob/gyn. Comprehensive fringe benefits, excellent facilities, competitive earnings. Contact: Paul Brat, M.D., Medical Director, Group Health Plan, 2500 Como Avenue, Saint Paul, Minnesota 55108. An equal opportunity employer.

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(trimethoprim and sulfamethoxazole)

succeeds

Bactrim is useful for the following infections when due to susceptible strains of indicated organisms (see indications section in summary of product information):

Expanding its usefulness in antimicrobial therapy

in recurrent UTI...

a continuing record of high clinical effectiveness against common uropathogens

in acute otitis media in children...

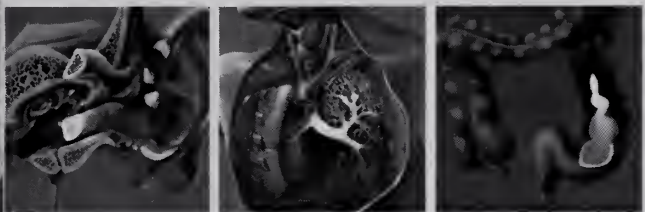
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clears the sputum and lowers its volume...on b.i.d. dosage

in shigellosis...

faster relief of diarrhea than with ampicillin²



Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infection be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. Limited clinical information presently available on effectiveness of treatment of otitis media with Bactrim when infection is due to ampicillin-resistant *Haemophilus influenzae*. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antimicrobial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warning: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS.

Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folate metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. Blood dyscrasias: Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. Allergic reactions: Erythema

multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. Gastrointestinal reactions: Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea and pancreatitis. CNS reactions: Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. Miscellaneous reactions: Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Doseage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

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Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: Double Strength (DS) tablets, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100; Tel-E-Dose[®] packages of 100; Prescription Paks of 20 and 28. Tablets, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose[®] packages of 100; Prescription Paks of 40. Pediatric Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry-flavored—bottles of 100 ml and 16 oz (1 pint).

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1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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* due to susceptible strains of indicated organisms

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Indications: Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal, adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication. Abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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President's Letter



An Open Letter to the Medical Students and Residents in Minnesota

I am writing you in behalf of the physicians of Minnesota suggesting and encouraging your active participation in medical association affairs. We need you now, and medicine as a profession urgently needs you for the future. We appreciate the efforts and participation of many of you at this time, but your numbers must grow if we are to have a strong and representative medical society for the future.

At the present time there are 34 regional medical societies in our state with a combined active MMA membership of 5,719. This number includes 463 resident members and 288 student members. The majority of these are also members of the AMA.

Medical students are eligible to join the MMA at any time while they are in medical school for a one-time \$5.00 fee. This entitles the students to full membership benefits including the right to vote, participate in the various committee deliberations, and to hold office. Also, most regional medical society fees are a one-time \$5.00 charge for students.

Resident physician members are entitled to full benefits including the right to hold any office in the MMA. Membership fees are \$5.00 a year for state and regional societies. AMA dues are \$15.00 a year for students and \$35.00 a year for residents.

The AMA has sections for medical students and residents. These two groups meet immediately prior to the convening of the AMA House of Delegates. Representatives are selected by vote to be seated as delegates. The impact of the medical student and resident sections is substantial at the AMA Meetings. I have been impressed many times by medical students and residents who have met with the Minnesota AMA delegation. Travel and meeting costs for our elected students and residents are partially subsidized by the MMA.

Among the benefits of membership is the eligibility to participate in the various MMA insurance programs which include a favorably rated group term life policy and major medical and hospitalization indemnity insurance policies.

MMA members receive MINNESOTA MEDICINE monthly. This journal, in addition to publishing a wide range of medical articles by local authors, provides timely editorials, essays, and political economic analyses of issues of importance to medical practice in Minnesota.

The medical student loan program administered by the Foundation of The Minnesota Medical Association is a major membership benefit. This fund provides loans to medical students up to \$2,000 a year with no interest charged until graduation. The student agrees to repay the money within three years after graduation at a rate of 8% interest per year. The money is recycled for other students to use.

This fund is the accumulation of MMA physician donations. There are currently 327 loans outstanding, and a cumulative total of 450 loans having been issued up to the present time. With rising costs and more limited loan sources, this fund is a wonderful way for the practicing physician to help the student get a start in professional life.

Notwithstanding the above, the most valuable, though intangible, membership benefit is the opportunity to be involved in and participate in the formation of medical practice policy.

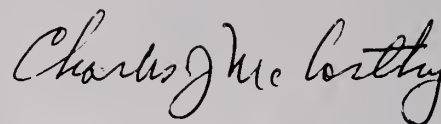
MEMBERSHIP provides the necessary forum to question, to influence, or to respond or react to issues or actions significant to the practice of medicine.

I recognize that as a student or resident these concerns may seem remote and low in your priorities. Many of you have not decided how, where, or what

PRESIDENT'S LETTER

your mode of practice will be after graduation. At this time, you owe it to yourself to have a hand in the development of your own future.

We welcome you!



Charles J. McCarthy, M.D.
President
Minnesota Medical Association

Continuing Medical Education St. Cloud Hospital Workshop on Blood Component Therapy Saturday, March 20, 1982; 8-4:30

Program:	Roslyn Yomtovian, M.D., Pathologist and Medical
Introduction	Director of Blood Bank, St. Cloud Hospital.
Blood Components: The Role of American Red Cross Blood System	Robert Bowman, M.D., American Red Cross Blood Services, St. Paul Region.
Past, Present, and Future of Blood Component Therapy	Jeffrey McCullough, M.D., University of Minnesota Hospitals and Director of American Red Cross Blood Services, St. Paul Region.
Untoward Effects of Blood Component Therapy	S. Breannan Moore, M.D., Mayo Clinic Blood Bank.
Blood Component Therapy in Neonates and Children	Phyllis Warkentin, M.D., University of Minnesota Hospitals.
Blood Components for Surgical and Trauma Patients	John Crosson, M.D., Hennepin County Medical Center, Minneapolis.
The Use of Blood Components in Patients with Coagulation Problems	William Swaim, M.D., V.A. Medical Center, Minneapolis.
Blood Bank Support of the Oncology Patient	Bruce Lewis, M.D., University of Minnesota Hospitals.
Panel Discussion of Submitted Case Histories	Moderated by Roslyn Yomtovian, M.D.

Approved for 6¼ hours of CME Credit for physicians, and designed to meet the registration requirements of the Minnesota Board of Nursing. For further information, contact Jane Ceynar at St. Cloud Hospital, Department of Pathology, (612) 255-5632, St. Cloud, Minnesota. This workshop is being cosponsored by the American Red Cross Blood Services, St. Paul Region.

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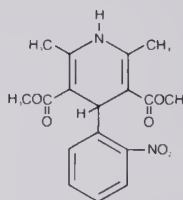
NEW
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(NIFEDIPINE) Capsules 10 mg

Please see PROCARDIA[®] prescribing information on next page.

PROCARDIA® CAPSULES nifedipine

For Oral Use

DESCRIPTION: PROCARDIA (nifedipine) is an antianginal drug belonging to a new class of pharmacological agents, the calcium channel blockers. Nifedipine is 3,5-pyridinedicarboxylic acid, 1,4-dihydro-2,6-dimethyl-4-(2-nitrophenyl)-, dimethyl ester, C₁₇H₁₈N₂O₆, and has the structural formula:



Nifedipine is a yellow crystalline substance, practically insoluble in water but soluble in ethanol. It has a molecular weight of 346.3. PROCARDIA CAPSULES are formulated as soft gelatin capsules for oral administration each containing 10 mg nifedipine.

CLINICAL PHARMACOLOGY: PROCARDIA (nifedipine) is a calcium ion influx inhibitor (slow channel blocker or calcium ion antagonist) and inhibits the transmembrane influx of calcium ions into cardiac muscle and smooth muscle. The contractile processes of cardiac muscle and vascular smooth muscle are dependent upon the movement of extracellular calcium ions into these cells through specific ion channels. PROCARDIA selectively inhibits calcium ion influx across the cell membrane of cardiac muscle and vascular smooth muscle without changing serum calcium concentrations.

Mechanism of Action: The precise means by which this inhibition relieves angina has not been fully determined, but includes at least the following two mechanisms:

1) **Relaxation and prevention of coronary artery spasm:** PROCARDIA dilates the main coronary arteries and coronary arterioles, both in normal and ischemic regions, and is a potent inhibitor of coronary artery spasm, whether spontaneous or ergonovine-induced. This property increases myocardial oxygen delivery in patients with coronary artery spasm, and is responsible for the effectiveness of PROCARDIA in vasospastic (Prinzmetal's or variant) angina. Whether this effect plays any role in classical angina is not clear, but studies of exercise tolerance have not shown an increase in the maximum exercise rate-pressure product, a widely accepted measure of oxygen utilization. This suggests that, in general, relief of spasm or dilation of coronary arteries is not an important factor in classical angina.

2) **Reduction of oxygen utilization:** PROCARDIA regularly reduces arterial pressure at rest and at a given level of exercise by dilating peripheral arterioles and reducing the total peripheral resistance (afterload) against which the heart works. This unloading of the heart reduces myocardial energy consumption and oxygen requirements and probably accounts for the effectiveness of PROCARDIA in chronic stable angina.

Pharmacokinetics and Metabolism: PROCARDIA is rapidly and fully absorbed after oral administration. The drug is detectable in serum 10 minutes after oral administration, and peak blood levels occur in approximately 30 minutes. It is highly bound by serum proteins. PROCARDIA is extensively converted to inactive metabolites and approximately 80% of PROCARDIA and metabolites are eliminated via the kidneys. The half-life of nifedipine in plasma is approximately two hours. There is no information on the effects of renal or hepatic impairment on excretion or metabolism of PROCARDIA.

Hemodynamics: Like other slow channel blockers, PROCARDIA exerts a negative inotropic effect on isolated myocardial tissue. This is rarely, if ever, seen in intact animals or man, probably because of reflex responses to its vasodilating effects. In man, PROCARDIA causes decreased peripheral vascular resistance and a fall in systolic and diastolic pressure, usually modest (5–10 mm Hg systolic), but sometimes larger. There is usually a small increase in heart rate, a reflex response to vasodilation. Measurements of cardiac function in patients with normal ventricular function have generally found a small increase in cardiac index without major effects on ejection fraction, left ventricular end diastolic pressure (LVEDP) or volume (LVEDV). In patients with impaired ventricular function, most acute studies have shown some increase in ejection fraction and reduction in left ventricular filling pressure.

Electrophysiologic Effects: Although, like other members of its class, PROCARDIA decreases sinoatrial node function and atrioventricular conduction in isolated myocardial preparations, such effects have not been seen in studies in intact animals or in man. In formal electrophysiologic studies, predominantly in patients with normal conduction systems, PROCARDIA has had no tendency to prolong atrioventricular conduction, prolong sinus node recovery time, or slow sinus rate.

INDICATIONS AND USAGE: 1. **Vasospastic Angina:** PROCARDIA (nifedipine) is indicated for the management of vasospastic angina confirmed by any of the following criteria: 1) classical pattern of angina at rest accompanied by ST segment elevation, 2) angina or coronary artery spasm provoked by ergonovine, or 3) angiographically demonstrated coronary artery spasm. In those patients who have had angiography, the presence of significant fixed obstructive disease is not incompatible with the diagnosis of vasospastic angina, provided that the above criteria are satisfied. PROCARDIA may also be used where the clinical presentation suggests a possible vasospastic component but where vasospasm has not been confirmed, e.g., where pain has a variable threshold on exertion or in unstable angina where electrocardiographic findings are compatible with intermittent vasospasm, or when angina is refractory to nitrates and/or adequate doses of beta blockers.

2. **Chronic Stable Angina (Classical Effort-Associated Angina):** PROCARDIA is indicated for the management of chronic stable angina (effort-associated angina) without evidence of vasospasm in patients who remain symptomatic despite adequate doses of beta blockers and/or organic nitrates or who cannot tolerate those agents.

In chronic stable angina (effort-associated angina) PROCARDIA has been effective in controlled trials of up to eight weeks duration in reducing angina frequency and increasing exercise tolerance, but confirmation of sustained effectiveness and evaluation of long-term safety in these patients are incomplete.

Controlled studies in small numbers of patients suggest concomitant use of PROCARDIA and beta-blocking agents may be beneficial in patients with chronic stable angina, but available information is not sufficient to predict with confidence the effects of concurrent treatment, especially in patients with compromised left ventricular function or cardiac conduction abnormalities. When introducing such concomitant therapy, care must be taken to monitor blood pressure closely since severe hypotension can occur from the combined effects of the drugs. (See Warnings.)

CONTRAINDICATIONS: Known hypersensitivity reaction to PROCARDIA.

WARNINGS: **Excessive Hypotension:** Although in most patients, the hypotensive effect of PROCARDIA is modest and well tolerated, occasional patients have had excessive and poorly tolerated hypotension. These responses have usually occurred during initial titration or at the time of subsequent upward dosage adjustment, and may be more likely in patients on concomitant beta blockers.

Increased Angina/Beta Blocker Withdrawal: Occasional patients have developed well documented increased frequency, duration or severity of angina on starting PROCARDIA or at the time of dosage increases. The mechanism of this response is not established but could result from decreased coronary perfusion associated with decreased diastolic pressure with increased heart rate, or from increased demand resulting from increased heart rate alone.

Patients recently withdrawn from beta blockers may develop a withdrawal syndrome with increased angina, probably related to increased sensitivity to catecholamines. Initiation of PROCARDIA treatment will not prevent this occurrence and might be expected to exacerbate it by provoking reflex catecholamine release. There have been occasional reports of increased angina in a setting of beta blocker withdrawal and PROCARDIA initiation. It is important to taper beta blockers if possible, rather than stopping them abruptly before beginning PROCARDIA.

Congestive Heart Failure: Rarely, patients usually receiving a beta blocker have developed heart failure after beginning PROCARDIA. Patients with tight aortic stenosis may be at greater risk for such an event, as the unloading effect of PROCARDIA would be expected to be of less benefit to these patients, owing to their fixed impedance to flow across the aortic valve.

PRECAUTIONS: **General:** Hypotension: Because PROCARDIA decreases peripheral vascular resistance, careful monitoring of blood pressure during the initial administration and titration of PROCARDIA is suggested. Close observation is especially recommended for patients already taking medications that are known to lower blood pressure. See Warnings.

Peripheral edema: Mild to moderate peripheral edema, typically associated with arterial vasodilation and not due to left ventricular dysfunction, occurs in about one in ten patients treated with PROCARDIA. This edema occurs primarily in the lower extremities and usually responds to

diuretic therapy. With patients whose angina is complicated by congestive heart failure, care should be taken to differentiate this peripheral edema from the effects of increasing left ventricular dysfunction.

Drug Interactions: Beta-adrenergic blocking agents: See Indications and Warnings. Experience in over 1400 patients in a non-comparative clinical trial has shown that concomitant administration of PROCARDIA and beta-blocking agents is usually well tolerated, but there have been occasional literature reports suggesting that the combination may increase the likelihood of congestive heart failure, severe hypotension or exacerbation of angina.

Long-acting nitrates: PROCARDIA may be safely co-administered with nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.

Carcinogenesis, mutagenesis, impairment of fertility: Nifedipine was administered orally to rats for two years and was not shown to be carcinogenic. When given to rats prior to mating, nifedipine caused reduced fertility at a dose approximately 30 times the maximum recommended human dose. *In vivo* mutagenicity studies were negative.

Pregnancy: Pregnancy category C. Nifedipine has been shown to be teratogenic in rats when given in doses 30 times the maximum recommended human dose. Nifedipine was embryotoxic (increased fetal resorptions, decreased fetal weight, increased stunted forms, increased fetal deaths, decreased neonatal survival) in rats, mice and rabbits at doses of from 3 to 10 times the maximum recommended human dose. In pregnant monkeys, doses 2/3 and twice the maximum recommended human dose resulted in small placentas and underdeveloped chorionic villi. In rats, doses three times the maximum human dose and higher caused prolongation of pregnancy. There are no adequate and well-controlled studies in pregnant women. PROCARDIA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

ADVERSE REACTIONS: In multiple-dose U.S. and foreign-controlled studies in which adverse reactions were reported spontaneously, adverse effects were frequent but generally not serious and rarely required discontinuation of therapy or dosage adjustment. Most were expected consequences of the vasodilator effects of PROCARDIA.

Adverse Effect	PROCARDIA (%) (N = 226)	Placebo (%) (N = 2)
Dizziness, light-headedness, giddiness	27	15
Flushing, heat sensation	25	8
Headache	23	20
Weakness	12	10
Nausea, heartburn	11	8
Muscle cramps, tremor	8	3
Peripheral edema	7	1
Nervousness, mood changes	7	4
Palpitation	7	5
Dyspnea, cough, wheezing	6	3
Nasal congestion, sore throat	6	8

There is also a large uncontrolled experience in over 2100 patients in the United States. Most of the patients had vasospastic or resistant angina pectoris, and about half had concomitant treatment with beta-adrenergic blocking agents. The most common adverse events were the same ones seen in the controlled trials, with dizziness or light-headedness, peripheral edema, nausea, weakness, headache and flushing each occurring in about 10% of patients, transient hypotension in about 5%, palpitation in about 2% and syncope in about 0.5%. Syncopal episodes did not recur with reduction in the dose of PROCARDIA or concomitant antianginal medication. Very rarely, introduction of PROCARDIA therapy was associated with an increase in anginal pain, possibly due to associated hypotension.

Several of these side effects appear to be dose related. Peripheral edema occurred in about one in 25 patients at doses less than 60 mg per day and in about one patient in eight at 120 mg per day or more. Transient hypotension, generally of mild to moderate severity and seldom requiring discontinuation of therapy, occurred in one of 50 patients at less than 60 mg per day and in one 20 patients at 120 mg per day or more.

In addition, 2% or fewer of patients reported the following: **Respiratory:** Nasal and chest congestion, shortness of breath. **Gastrointestinal:** Diarrhea, constipation, cramps, flatulence. **Musculoskeletal:** Inflammation, joint stiffness, muscle cramps. **CNS:** Shakiness, nervousness, jitteriness, sleep disturbances, blurred vision, difficulties in balance. **Other:** Dermatitis, pruritus, urticaria, fever, sweating, chills, sexual difficulties.

In addition, more serious adverse events were observed, not readily distinguishable from the natural history of the disease in these patients. It remains possible, however, that some or many of these events were drug related. Myocardial infarction occurred in about 4% of patients with congestive heart failure or pulmonary edema in about 2%. Ventricular arrhythmias or conduction disturbances each occurred in fewer than 0.5% of patients.

In a subgroup of over 1000 patients receiving PROCARDIA with concomitant beta blocker therapy, the pattern and incidence of adverse experiences was not different from that of the entire group of PROCARDIA treated patients (see Precautions).

In a subgroup of patients with a diagnosis of congestive heart failure as well as angina, dizziness or light-headedness, peripheral edema, headache or flushing each occurred in one in eight patients. Hypotension occurred in about one in 20 patients. Syncope occurred in approximately one patient in 250. Myocardial infarction or symptoms of congestive heart failure each occurred in about one patient in 15. Atrial or ventricular dysrhythmias each occurred in about one patient in 150.

Laboratory tests: Rare, mild to moderate, transient elevations of enzymes such as alkaline phosphatase, CK, LDH, SGOT, and SGPT have been noted, and a single incident of significant elevated transaminases and alkaline phosphatase was seen in a patient with a history of gall bladder disease after about eleven months of nifedipine therapy. The relationship PROCARDIA therapy is uncertain. These laboratory abnormalities have already been associated with clinical symptoms. Cholestasis, possibly due to PROCARDIA therapy, has been reported twice in the extensive world literature.

OVERDOSEAGE: Although there is no well documented experience with PROCARDIA overdose, available data suggest that gross overdose could result in excessive peripheral vasodilation with subsequent marked and probably prolonged systemic hypotension. Clinically significant hypotension due to PROCARDIA overdose calls for active cardiovascular support including monitoring of cardiac and respiratory function, elevation of extremities, and attention to circulatory fluid volume and urine output. A vasoconstrictor (such as norepinephrine) may be helpful in restoring vascular tone and blood pressure, provided that there is no contraindication to its use. Clearance of PROCARDIA would be expected to be prolonged in patients with impaired liver function. Since PROCARDIA is highly protein-bound, dialysis is not likely to be of benefit.

DOSAGE AND ADMINISTRATION: The dosage of PROCARDIA needed to suppress angina and that can be tolerated by the patient must be established by titration. Excessive doses can result in hypotension.

The starting dose is one 10 mg capsule, swallowed whole, 3 times a day. The usual effective dose range is 10–20 mg three times daily. Some patients, especially those with evidence of coronary artery spasm, respond only to higher doses, more frequent administration, or both. In such patients, doses of 20–30 mg three or four times daily may be effective. Doses above 120 mg daily are rarely necessary. More than 180 mg per day is not recommended.

In most cases, PROCARDIA titration should proceed over a 7–14 day period so that the physician can assess the response to each dose level and monitor the blood pressure before proceeding to higher doses.

If symptoms so warrant, titration may proceed more rapidly provided that the patient is assessed frequently. Based on the patient's physical activity level, attack frequency, and sublingual nitroglycerin consumption, the dose of PROCARDIA may be increased from 10 mg t.i.d. to 20 mg t.i.d. and then to 30 mg t.i.d. over a three-day period.

In hospitalized patients under close observation, the dose may be increased in 10 mg increments over four to six-hour periods as required to control pain and arrhythmias due to ischemia. Single dose should rarely exceed 30 mg.

No "rebound effect" has been observed upon discontinuation of PROCARDIA. However, if discontinuation of PROCARDIA is necessary, sound clinical practice suggests that the dosage should be decreased gradually with close physician supervision.

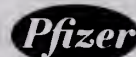
Co-Administration with Other Antianginal Drugs: Sublingual nitroglycerin may be taken as required for the control of acute manifestations of angina, particularly during PROCARDIA titration. See Precautions, Drug Interactions for information on co-administration of PROCARDIA with beta blockers or long-acting nitrates.

HOW SUPPLIED: Each orange, soft gelatin PROCARDIA Capsule contains 10 mg of nifedipine. PROCARDIA Capsules are supplied in amber glass bottles of 100 capsules (NDC 0069-2600-66).

The capsules should be protected from light and moisture and stored at controlled room temperature 59° to 77°F (15° to 25°C) in the manufacturer's original container.

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Editor's Notebook

Signs of the Times in Competitive Medicine

Third of Three Parts. Reagan Plan, Cast of Characters, and Great Unmentionable

"The Reagan Administration is putting the finishing touches on a plan to slow the rise in medical costs. Many health experts say the proposal would bring the most sweeping changes in American Medicine since Medicare and Medicaid were enacted nearly two decades ago . . . The bill is expected to cause months, perhaps even years, of heated debate, with the main opposition coming from organized labor. . . . Many doctors, insurers and hospital leaders were also dubious that the proposals would actually have the desired effect."

Robert Reinhold, "Reagan Advisors Refine Plan to Cut Health Costs," New York Times, Sunday, February 14, 1982

In this last of three editorials on Competitive Medicine, I am going to outline the Reagan plan to introduce competitive pressures into the health system, describe a cast of characters that will play key roles in the debate that ensues, and mention the Great Unmentionable — the threatened demise of independent fee-for-service medicine.

The Reagan Plan

I cannot discuss the Reagan Plan in more than shadowy outlines because it is yet to be introduced. But among other things, the plan would prevent employers from deducting "excessive" health insurance premiums from income taxes, encourage employers to offer a choice of plans, and create a voucher system under which Medicare patients could select private pre-paid plans.

Three Elements

The plan will include three elements: (1) employers will be unable to deduct more than \$1800 a year in health plan contributions for each family or more than \$720 for each worker (the cap will rise each year with the Consumer Price Index); (2) tax credits will be granted to employers who give workers a choice of plans (qualifying plans will include HMOs and variants; employees enrolling in cheaper plans will get rebates; and all plans will limit a family's liability to \$3500 a year); and (3) vouchers will be given to Medicare recipients, and they can use vouchers to buy private plans (These vouchers will be worth 95 percent of what the Government pays for Medicare, and HMOs and private insurers may compete for the voucher business, provided they offer as comprehensive benefits as Medicare).

Major Impact of Plan

The major impact of such a plan would be to stimulate more pre-paid plans with the built-in incentives to economize because of fixed fees for each patient. According to Robert J. Rubin, M.D., Health and Human Services official, the Reagan approach is a "safe middle ground", and would make patients "conscious of the economic consequences of their decisions" and would redress ". . . the existing bias toward openended coverage."

The big idea behind the plan, of course, is to bring down escalating health care costs. In 1981, physicians' fees rose 11.7 percent, hospital room charges 17.0 percent, prescription drugs 12.6 percent, dental services 10.7 percent, and medical commodities 10.2 percent. Meanwhile, the Consumer Price Index went up 8.9 percent. The 17.0 percent rise in hospital costs was particularly galling to the Administration, though their cost-shifting from

Medicare and Medicaid to private patients may have been a primary factor in causing the rise.

This brief outline oversimplifies the Reagan plan. It also ignores the behind the scenes political maneuvering going on. President Reagan, perhaps because of his background as an actor, is not a man to reveal the details of his plot before the curtain goes up. Even such a crucial competition advocate as Senator David Durenberger admits: "We do not yet have a clear idea of what the administration's health policy is going to be."¹ This lack of clarity is understandable. The final compromises have yet to be struck.

Cast of Characters

For the last five years, I have been observing the ideas, background and characters of those who shape health care policy. Five years ago, only liberal voices were being taken seriously. But this ideological bias has shifted. Here is how Hodding Carter III, President Carter's spokesman for the State Department, describes the ideological transformation.²

"The GOP has been taken over by men and women aflame with ideas, with ideology begging for employment, with a zeal to move mountains and cut highways to old objectives. They are the same people whose convictions were laughed out of court by the knowing purveyors of conventional wisdoms in the wake of the 1964 Goldwater debacle, and they are the same people who gritted their teeth and started slogging back from the pit . . . They proselytized; they fought a long guerilla war; they churned out position papers, proving that think tanks were not the sole province of the liberal left; and they slowly but surely seized control of the public dialogue from Democrats."

In any event, with the Reagan plan, attention is shifting completely away from universal national medical insurance, now moribund because of its prohibitive cost. Now that liberalism has begun to fade, it's important to examine those carrying different ideological baggage. Here I shall describe a few of the men whom I think will be important in the competition debate.

1. *Joseph F. Boyle, M.D. Chairman of the Board of Trustees of the AMA*

I have met Doctor Boyle on two occasions (1) as a national speaker at the Harvard Seminar on competition strategies in the 1980s; and (2) as a breakfast guest of the Minnesota Medical Association a few months ago. Doctor Boyle is a California internist who was raised and educated in New Jersey. He is tough, articulate, persuasive and fearless. At the Harvard seminar, he did a masterful job explaining the AMA's position before a largely skeptical and even hostile audience. He asked why health is viewed as a "problem industry" when it is growing rapidly, has largely satisfied its customers, and is universally regarded as offering the best product in the world. He argued market forces are already bringing health care problems under control, defended the use of technology in medicine, cited the distortions of government intervention, and highlighted the problems of physicians caught between patients and competitive forces. Later, speaking at a breakfast meeting of the Minnesota Medical Association, he pointed out defects in the Gephardt-Stockman Bill: (1) would emphasize price rather than quality; (2) it would require a larger bureaucracy to establish health regions; (3) it would police the insurance industry as well as practitioners; (4) it would wipe out state licensing laws, and (5) it would allow non-medical professionals and non-professionals to practice in hospitals. From these remarks, and others about the changing AMA leadership, it is clear the AMA is positioning itself to debate hidden procompetitive issues that are not at first evident to non-medical observers.

2. *Robert Rubin, M.D. Assistant Secretary for Planning and Evaluation in Department of Health and Human Services.*

Doctor Rubin, a Cornell Medical School graduate and a nephrologist, will be the point man in the struggle to persuade critics of the feasibility of the Reagan Plan. I have only witnessed Doctor Rubin in action once, at the Harvard Seminar, but he came across as a young self-assured conservative who is hard hitting and tough-minded and who enjoys the

give-and-take of political exchange. Doctor Rubin is a former Robert Wood Johnson scholar who has served on Senator Schweiker's staff and who is acclaimed as the "chief architect" of Reagan's Plan. He regards the Reagan Plan as modest in scope. From his Harvard talk, I gathered he is against large-scale Federal activism, especially on the regulatory front.

3. *David Stockman, Director of the Budget.*

There are those who believe David Stockman destroyed his credibility when he confessed his misgivings about the Reagan budget to an *Atlantic Monthly* reporter. But others, like veteran reporter, Richard L. Strout of the *Christian Science Monitor*, differ: "He is only 35 and he is one of the most interesting, publicized and verbal men in Washington. Views of his role differ but nobody questions his ability: he is a whole Roosevelt brains-trust rolled into one; the Reagan administration's whizz-kid who repeatedly has found himself the budgetary mouthpiece of the White House and sometimes its controversial figure. It is hard sometimes to avoid his presence in the capitol. He has been testifying at hearings like this all over the place. He was on the CBS program *Face the Nation* last Sunday; he is articulate, unintimidated, self-assured, and a Mississippi of detailed information. When the first Reagan economic proposals were aired a year ago he was there with his billions; in the present budget he seems to know every footnote and paragraph. His mop of thick hair comes to his coat collar; there is aquiline nose, thin, pedantic face, large-rim glasses, rather small mouth."

Stockman proclaims himself as a "neoconservative," a political ideologist who rejects the utopianism of liberals but embraces the concept of a "safety-net" for the needy. Indeed neoconservatives see Medicare, Medicaid, and Social Security as bulwarks against further socialization. Perhaps the clearest expression of Stockman's health care philosophy appeared recently in *Health Affairs*, a scholarly quarterly just published under the auspices of Project Hope.⁴

In his article, Stockman dismisses four liberal assumptions about the current health care cost spiral: (1) that it stems from private excesses of providers; (2) that the health care market can be regulated; (3) that issues of access to health care must be coupled with income redistribution; and (4) that health care is unique among man's activities, i.e. a sort of spiritual or social or collective good.

In place of these assumptions he advances five premises: (1) that consumers must have a choice to spend less as well as more; (2) that a health care plan must be in fixed-monetary terms rather than as open-ended contract; (3) that providers who buy high-technology must do so at the risk of paying for failure or underutilization; (4) that health care ought to be on a retail basis with fierce market competition; and (5) that the government role ought to be laissez-faire, the government ought to specify nothing, and the provider market should be completely self-organizing.

4. *David Durenberger, Senator from Minnesota.*

Durenberger is widely admired in Washington as a thoughtful advocate of health care competition. Part of his power derives from his position as chairman of the Senate Finance Committee on Health, and part comes from his knowledge of competitive medicine in the Twin Cities. Durenberger takes a more relaxed and philosophical position than Stockman. He does not agree with Stockman, for example, that competition will replace regulation in two years. Indeed, he has voted against cutting funds in HSAs and PSROs because he thinks planning should be continued until competition has some impact. He doubts competition will create cost savings for at least ten years. Although a consumer advocate, he sees himself as an incrementalist: "The course to our present state of affairs has been incremental, and likewise our movement towards greater competition will be incremental."¹

5. *The gang of Five (Paul Ellwood, M.D., President of InterStudy; Walter McClure, Ph.D., President of Center for Policy Studies; Alain Enthoven, Ph.D., Professor at Stanford Business School, Clark C. Havighurst, Professor of Law at Duke University; and*

Eli Ginzberg, Ph.D., Professor of Economics at Columbia University).

In its February 8 issue, *Business Week* labeled Ellwood, McClure, Enthoven, and Havighurst as the "Gang of Four" because of their single-minded advocacy of health reform.⁵ I have added Ginzberg because of his 40 years of experience in the health reform movement, largely seen from the regulatory side of the fence. Ginzberg has written a realistic book, *Limits of Health Reform*, which shows how difficult health reform is in a democracy with multiple power centers.⁶ He is skeptical about efforts of the "Gang of Four". Of the "pro-competition movement" he says: "It seems to have been stirred up by a group of desperate people, including theoretical economists from universities like Stanford, Duke and Harvard, and congressmen and federal administrators searching for ways to reduce the outflow of federal dollars."⁷

I'm more respectful of Ellwood's McClure's, Enthoven's, and Havighurst's efforts. Ellwood and McClure's thinking has been tempered in the competitive fires of the Twin Cities, and Ellwood, after all, is the man who sold President Nixon the idea of HMOs back in 1971. Havighurst has long been a favorite of the conservative think-tank crowd and has written a book *Deregulating the Health Care Industry*. And Enthoven, who wrote a pro-competition bill for Joseph Califano, then head of HEW, has long been an advocate of a comprehensive national competition bill. He has authored a series of articles in the *New England Journal of Medicine* and a widely read book *Health Plan: The Only Practical Solution to the Soaring Cost of Medical Care*.^{8,9} All of the Gang of Five are respected critics of the current system, and perhaps most significantly, are consultants in the writing of the current crop of pro-competition bills.

6. John Ingelhart, writer of *Health Policy Report* in *New England Journal of Medicine* and Editor of *Health Affairs*.

I mention Ingelhart because of his influence and credibility in liberal circles. As the contributor of the Health Policy report in the *New England Journal of Medicine*, the most widely read and respected medical journal in the United States and perhaps the western world, his opinions carry weight with thousands of health care decision makers. And as editor of *Health Affairs*, an important new quarterly out of Washington on competition strategy, he has an insider's view of government. My only exposure to Ingelhart is through his *New England Journal* pieces and his appearance at the Harvard seminar. As a regular *Journal* reader, I am aware that more often than not, it presents the views of the "new class" of physicians, i.e. those physicians who regard the marketing of medical care as vaguely distasteful. This "new class" tends to think it represents "the public interest" and through its wisdom, it can redistribute government power and money to the common man. It regards market transactions as basically suspicious and vulgar and is therefore hostile to them. The bias of this group, to my mind, is reflected in these words of the *Journal's* editor:¹⁰

"The most important health-care development of the day is the recent, relatively unheralded rise of a huge new industry that supplies health-care services for a profit. Proprietary hospitals and nursing homes, diagnostic laboratories, home-care and emergency room services, hemodialysis and a wide variety of other services produced a gross income to this industry of about \$35 billion to \$40 billion. This new "medical-industrial complex" may be more efficient than its nonprofit competition, but it creates problems of overuse and fragmentation of services, overemphasis on technology, and "cream-skimming", and it may also exercise undue influence on national health policy."

This is not an attack on the "new class", it is simply an observation that the view from Boston tends to be for regulation and against competition. This view pervades the entire Boston academic community, not just the academic medical community. Here are two members of the Harvard School of Public Health talking about health care competition in a recent *Wall Street Journal* article:

"The answer to the problem of maintaining adequate access and quality at reasonable

cost doesn't lie in some pernicious form of competition, but in devising forms of regulation that can better meet the divergent requirements of patients, providers and payers alike. Rather than putting consumers at greater risk, we ought to develop more effective regulatory means to address the realities of the health-care marketplace."

Because of this pervasive anti-business and anti-competition animus, the Boston academic community has been referred to as the Charles River Gang — a kind of academic-technical-government-foundation elite that regards itself as representing the working class but not being part of it.

In any event, Ingelhart is a valuable pipeline to the disenfranchised liberals. He himself effectively cloaks his own political philosophies, but for the record is doubtful about competition reform because no competitive model exists elsewhere in the western world, cutting Medicare and Medicaid benefits does not help politicians get elected, and the commercialization of medicine will distract from this nobility as a social good and philanthropic enterprise.

7. *William G. Anylan, Vice President of Health Affairs, Duke University.*

And lastly, I include William G. Anylan, an influential medical educator. Doctor Anylan is important because for the last five years, under his leadership, Duke University Medical Center has conducted a Private Sector Conference in Medicine.¹² Participants have included chief executive officers of major corporations and academic medical centers, government officials, consumer leaders, media representatives — everybody with a stake in or interest in health expenditures. According to Anylan: "A major regret has been the lack of representatives of any of the unions; they have declined to attend."¹² Of the 35 participants, 80 percent have attended all five conferences.

In the 1980 conference, these issues were addressed: (1) the growing industrialization and collectivization of American medicine; (2) the dilemma of the teaching referral hospital; (3) the future of the voluntary efforts; (4) the plight of the poor; (5) the coming increase in the elderly population; (6) the role of prevention and health education; and (7) the role of the government in medicine. The conclusion?

"The challenge for the future is for the private sector to help decide what role the government should have in a private-public partnership in which both sides show good will and occasional rascality, and neither side has a monopoly on virtues or vices. The partnership between big medicine, big business, and big government is still undefined. For the moment, the private sector appears to have the ball."¹²

Because of Anylan's experience in dealing with the diverse forces in the private sector, I anticipate his will be the voice of moderation, wisdom, and balance in sorting out the competitive choices in the 1980s.

The Great Unmentionable

When you come down to it, what physicians fear most is not government medicine, or HMOs, or competitive plans, or prepaid health plans. What they fear is being forced to work for someone else, where someone else wants them to work, doing what someone else wants them to do. Most physicians prefer to work for fees in large service metropolitan communities, just as other professionals — architects, lawyers, professors, political consultants — do. Yet most health planners aiming for health reform disregard this physician resistance to employment and envisage physicians working as employees for organizations serving metropolitan and rural communities.

What I am saying is this: most physicians oppose reforms limiting their freedom to specialize, to work for themselves and to live and work where they please. I was reminded of this zeal for freedom of choice when an article by Harry Schwartz, writer-in-residence at the College of Physicians and Surgeons at Columbia, appeared in August, 1981 *Wall Street Journal*.¹³ The article, "Decline of the Independent Physician Continues" struck a

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responsive note among physicians and was widely quoted and admired in staff rooms. Here are a few excerpts:

"There is a feeling of despair among many older as well as younger practitioners about the future of entrepreneurial medicine. They see the federal government — regardless of party — as the enemy of traditional fee-for-service practice. They cite the rich government subsidies and special privileges for HMOs, and the incessant propaganda for cost containment.

"And to the extent that physicians are aware of it, there is a growing worry about the Carter and Reagan pushes for price competition in medicine. The Federal Trade Commission may not believe it, but most people — and most MDs believed until recently — and may still believe — that a doctor who advertized was unethical and immoral . . .

"But as the change continues, our society loses a large group of able and active people who have historically been among the staunchest supporters of free enterprise, economic liberty and all the institutions we lump together as capitalism . . . doctors are being converted from strong defenders of our economic order to a group that will be indifferent about whether it takes orders from private or government bosses."

To many doctors, then, the principle issue is not national health insurance or competition. It is independence, and yes, the right to practice entrepreneurial medicine — to function in a "free market" without "pro-competition," regulations. Yet, as far as I know, none of pro-competition plans emphasize the consumer's choice for fee-for-service physicians, if they do not belong to a prepaid plan.

That physicians must belong to competitive health insurance plans could have profound consequences. Take the Medicare Voucher System idea. According to William Walsh, M.D., chairman of President Reagan's Health Policy Committee, the voucher system for Medicare is "probably the only significant piece of (pro-competition) legislation that will pass." Under this system, Medicare patients will receive about \$150 a month and will be able to use the money to buy a competitive health insurance plan. The administration feels 50 percent of Medicare patients probably will choose the voucher over a three year period. After that, it would become mandatory. Where would that leave the independent fee-for-service physician? With no choice but to sign up as a physician for a prepaid plan.

What worries physicians is lack of "physician choice." This lack of choice, i.e. the choice of working as an independent provider, appalls physicians. Indeed this would represent a sweeping and revolutionary change in their self-image as responsible professionals.

There is a certain grim irony in all of this. Although many doctors consider themselves Republicans and conservative, doctors have prospered under liberal democratic legislation, and they have retained their fee-for-service freedom.

Now, under the Republicans, they may lose that freedom. They may lose it, not because it is vaguely "immoral", as liberals tend to perceive it, but because it is "uncontrollable" from the conservative bureaucrat's vantage point.

What is happening in my opinion, is not purely ideological but mainly managerial. A managerial revolution has occurred since World War II. Society has elected to entrust large social tasks, such as health care, to organizations rather than individuals. Outside of Medicare, this has been largely accepted as the "discipline of management". Other professionals find it hard to conceive why we, as physicians, find it so hard to work for others under the discipline of an organization.

I do not believe the case of fee-for-service medicine is doomed, but it is threatened. To survive, we must recognize this threat, develop our own managerial skills, or form, at the very least, loose coalitions that can take advantage of the managerial skills of others.

Final Thoughts

Would a Reagan pro-competition bill threaten independent or fee-for-service practice? It

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would if passed in its entirety in a pure form. I do not foresee that happening. But I do see a trend away from fee-for-service and independent medicine. Why? First of all, there is going to be a surplus of young physicians, and these physicians, many of whom are heavily indebted, will not run the financial risk of private practice. Secondly, women will soon comprise one fourth of new physicians. Women are more likely to accept salaried positions in hospitals, clinics, and groups. Thirdly, although most health care will continue to be delivered by private physicians, these physicians will increasingly join groups to take advantage of management skills, and the others will more and more go into Independent Practice Associations (IPAs). They will have to band together in IPAs because employers will insist on certain fees and standards for medical services. The IPA will recommend physicians who agree to the fees and standards. In short, physicians will have to serve under some organizational umbrella to survive. This umbrella will, I think, be loose enough for them to retain a degree of independence and also the privilege of practicing fee-for-service medicine.

Richard L. Reece MD

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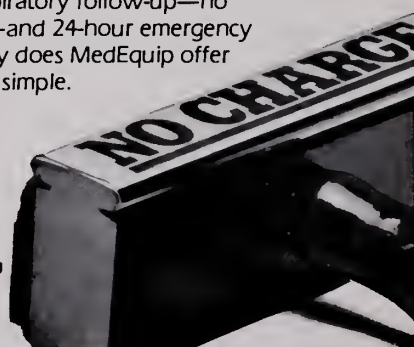
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Toxic Plants of Minnesota

Skin Toxicity of the Prairie Crocus (*Anemone patens* L.)

J. CORWIN VANCE, M.D.*

The cutaneous toxicity of the plant *Anemone patens* was studied. The foliage of the plant caused itching and burning and resulted in erythema, edema, bulla formation and ultimately left post-inflammatory hyperpigmentation following a brief exposure to the skin. The toxin was localized primarily in the leaves and stems. Tests for phytophotodermatitis were negative.

THE PRAIRIE CROCUS† or pasque flower (*Anemone patens* L.) is a well known and relatively common early spring flower on the dry prairies of Minnesota^{1,2}. The Seven Sisters Prairie in Douglas County which has been preserved by the Minnesota Chapter of the Nature Conservancy is particularly noted for its spectacular display of *A. patens*³. Almost unknown, however, is the potential toxicity of the plant. The buttercup family (Ranunculaceae) is known to contain many species having various toxic substances. The genus *Anemone* has been often cited as containing toxin-rich species, but for the most part, the nature of such toxins, their method of action, and their species distribution remain obscure. There is a single report in the modern medical literature concerning the toxicity of the species *A. patens*⁴.

Methods

The plants were collected at the Seven Sisters Prairie in the spring of 1980, and they were tested while still fresh. Patch tests were done to test irritancy, modifying the method routinely employed for allergic contact dermatitis⁵. Small amounts of the plant or its components were thoroughly crushed and placed under an occlusive dressing (A1 Test Strips®). The dressings were removed after one hour but the skin was not washed immediately, and the cutaneous effects observed. Tests for photoactivity of the plants were also done by modifying established methods⁶. Three duplicate patches of the whole crushed plant were placed under occlusive dressings on the back for 45 minutes, and then removed and irradiated using a Hannovia hot quartz lamp. The volunteer's minimal erythema dose (MED) was tested, and found to be 30

seconds. A control site was not irradiated, one site was given 30 seconds of unfiltered UVB, and a third site was given 150 seconds filtered through window glass.

Results

To initially test whether or not the plant was toxic to the skin, an entire flowering plant except for the roots was thoroughly diced and a generous amount placed on the forearm under occlusion for one hour. There was a slight tingling noted while the plant was on the skin but no objective changes were present when the plant was removed. After 12 hours a mild erythema appeared but the site remained asymptomatic. After 36 hours the site developed slight tenderness and a small blister appeared which then enlarged over the next 24 hours to become a large flaccid bulla which was very tender. The bulla was then surrounded by an intense erythema and edema. Over the next 48 hours the bulla resolved and eventually desquamated leaving residual erythema and hyperpigmentation which resolved over a period of months.

To determine which plant parts contained the toxin, the plants were mechanically separated into components: (1) stems, (2) plant hairs, (3) roots, (4) leaves, (5) sepals, (6) anthers and pollen.

A mixture of all of the parts was also tested. The plant hairs, roots, sepals, and anthers and pollen all were without any detectible reaction. The stems, leaves, and the mixture all produced a reaction similar to the previous test. The leaves produced the most severe reaction while the mixture produced slightly less, and the stems alone even less reaction (erythema and edema only) suggesting that the toxin was present primarily in the leaves and to a lesser degree in the stems while in much smaller concentrations in other plant parts.

In the photo testing, there was no detectible increase

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†See cover photo.

This project was supported in part by the Minnesota chapter of the Nature Conservancy who also gave special permission for the collecting of the plants on the preserve.

in the reactivity of the skin at the test sites when given ultraviolet light, either filtered or unfiltered.

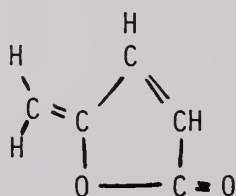
Discussion

Cutaneous toxicity of plants can be divided into three groups: irritant contact dermatitis, allergic contact dermatitis, and phytophotodermatitis. Systemic toxins are also well recognized in plants, many of which cause cutaneous reactions as well.

Irritant Contact Dermatitis

In the old literature it was reported that many members of the buttercup family (Ranunculaceae) were "acrid" and "caustic" and that handling them was troublesome.⁷ Blisters are known to be caused by various buttercups⁸ and are said to form at skin sites at which intimate contact with injured leaves or stems takes place.⁹ Among members of the family Ranunculaceae, the genera *Ranunculus*, *Anemone*, *Clematis*, and *Helleborus* have all been claimed to contain species which are irritating but not sensitizing.¹⁰ Ruijgrok, in his chemical survey of the Ranunculaceae, found that all of the above genera contained the compound ranunculin.¹¹ Ranunculin is the non-irritating precursor of the highly irritating compound protoanemonin.¹² The conversion is enzymatic, and takes place in crushed foliage. The presence of ranunculin in a plant is generally taken to provide evidence that the plant will cause irritant dermatitis if adequate exposure of the skin to injured plant takes place.¹³ It has been found that in the genus *Ranunculus*, the content of protoanemonin varies with the species, and the stage of growth, and that some species are particularly variable with respect to its content.⁴

The structure of protoanemonin¹⁵



It was first isolated from *A. cernua* and named by Kariyone.¹⁶ Protoanemonin spontaneously undergoes polymerization, yielding the innocuous compound anemonin. The toxicity of plants containing protoanemonin is abolished by drying or boiling the foliage¹⁷ which may enhance the protoanemonin to anemonin conversion.

In the genus *Anemone*, a number of species have

been recorded as irritants. As early as 1597 Gerard stated: "All the kinds of *Anemones* are sharp and biting the tongue".¹⁸ The following table of *Anemone* species reported to be irritating was extracted from Mitchell and Rook's text¹³ (By permission).

TABLE 1

Irritant Plants From the Genus *Anemone*

<i>A. apennina</i>	<i>A. obtusifolia</i>
<i>A. cernua</i>	<i>A. patens</i> *
<i>A. coronaria</i> *	<i>A. pratensis</i>
<i>A. cylindrica</i> *	<i>A. pulsatilla</i>
<i>A. hepatica</i>	<i>A. quinquefolia</i> *
<i>A. multifida</i> *	<i>A. ranunculoides</i>
<i>A. nemorosa</i>	<i>A. sylvestris</i>

*The noted species occur in the State of Minnesota.¹⁴

In the American medical literature, there is a single clinical case report of a skin eruption due to contact with *A. patens*.⁴ Aaron and Muttitt reported a 77-year-old woman of partial Cree origin who applied leaf compresses to her knees to treat arthritis. A burning sensation followed by erythema and swelling of the skin developed after about one hour. The rapidity of onset suggests that the dermatitis was of an irritant contact nature, since allergic contact dermatitis would be more delayed. Covering the skin with a compress would prevent sun exposure, but after the onset of burning she probably removed the compress and in all likelihood exposed her knees to the sun. Thus it is impossible to exclude the possibility that phytophotodermatitis played a role.

Aaron and Muttitt then tested the plant on four volunteers. The test materials were described only by saying that crushed stems and leaves were placed on the arms. Warmth, burning, and irritation occurred in all cases within five minutes. One volunteer removed the material after five minutes, and erythema developed which persisted for two or three days. The others left the material on their skin from 20 to 60 minutes. Erythema and edema occurred promptly in all, followed by vesiculation in 24 hours which then resolved leaving the skin hyperpigmented.

The fact that all volunteers were affected by the plant, and that the irritation appeared promptly suggests an irritant contact cutaneous reaction. It is possible that protoanemonin was the toxic factor. The role of the numerous plant hairs present on *A. patens*, possibly causing a mechanical injury to the skin, was not examined. The variable toxicity of different plant parts or stages of growth also was not studied.

The results of the present experiment confirms the findings of Aaron and Muttitt, in showing that the

stems and leaves are cutaneous irritants. I also showed that the irritant potential was greatest in the leaves and slightly less in the stems but not present in the plant hairs, roots, sepals, anthers, or pollen.

Allergic Contact Dermatitis

Allergic contact dermatitis due to the plant *A. patens* has never been reported. It's allergic potential has also never been tested for in a systematic manner. The fact that all people tested to date have developed an eruption is strong evidence for the irritant rather than allergic nature of the toxicity.

Phytophotodermatitis

Many plants produce substances which have no direct effect on the skin, but which sensitize the skin to the effects of the sun. When an area of skin having a phototoxin present is exposed to the sun, dermatitis develops which is often bullous. The blisters heal rapidly, but leave residual hyperpigmentation of the skin.

Furocoumarins are the major phototoxic compounds produced by plants, and a wide spectrum of plants produce them. A list of families producing furocoumarins was compiled by Pathak et al.²⁰ and it is given below.

TABLE 2

Plant Families Known to Produce Furocoumarins

Umbelliferae	Rosaceae
Rutaceae	Compositae
Moraceae	Chenopodiaceae
Ranunculaceae	Leguminosae
Cruciferae	Hypericaceae
Convolvulaceae	Frullania

As can be seen, members of the Ranunculaceae family, of which *Anemone patens* is a member, are known to contain furocoumarins, but the genus *Anemone*, and specifically *A. patens* have not been recorded to contain furocoumarins.

The furocoumarin phototoxic reaction is markedly enhanced by wet skin or high humidity which are responsible for increased percutaneous absorption of the phototoxin.^{21,22} It is of interest here to remember that the skin toxicity of *A. patens* was reported in a patient who had applied a wet compress, and in volunteers who applied crushed (moist) plants to their skin.⁴ The reaction to *A. patens* resembles a

phototoxic reaction clinically to the extent that it is bullous and resolves leaving residual postinflammatory hyperpigmentation. The phototesting in the present experiment was designed to test the hypothesis that *A. patens* produces a furocoumarin which plays a role in its cutaneous toxicity. The fact that irradiation of test sites produced no accentuation of the dermatitis over sites which were kept shielded from any light exposure shows that phototoxicity plays no significant role in the observed toxicity of the plant.

Systemic Toxicity

No known cases of systemic poisoning attributable to *Anemone* species have been recorded from the United States. In fact, some species of *Anemone* are thought to provide limited forage for sheep, deer and elk.²³ Some members of the *Anemone* genus are known to contain volatile constituents which cause nasal congestion, lacrimation, sneezing, and a painful conjunctivitis. After ingestion of some of the plant, a burning sensation develops in the mouth, followed by stomatitis, blisters, and ulceration.¹⁷ Those symptoms no doubt limit the ingestion of the plant and prevent most serious poisonings.

Aaron and Muttitt⁴ reported detecting an irritating odor when crushing the plants, and that tingling and irritation of the conjunctivae and nasal mucosa occurred. No odor was noted during these experiments, and no mucosal symptoms were detected even though a small amount of the plant was chewed in an attempt to elicit the symptoms.

From European reports, it has been recorded that vomiting, abdominal pain, and bloody diarrhea follow the ingestion of protoanemonin containing plants. Dizziness, syncope, and convulsions may follow if significant amounts are absorbed. In cases of systemic intoxication, a bullous eruption of the skin may appear.¹⁷ A case of severe urticarial reaction in a dog following ingestion of the tall field buttercup, also thought to contain protoanemonin, has recently been reported.²⁴

This report should serve to emphasize that toxic plants exist in our environment. While numerous books have been published identifying edible or useful plants, similar books for a lay person, identifying toxic and poisonous plants are rare. Reasonable caution in handling and especially in ingesting plants is a vital necessity.

References will be found on page 188.

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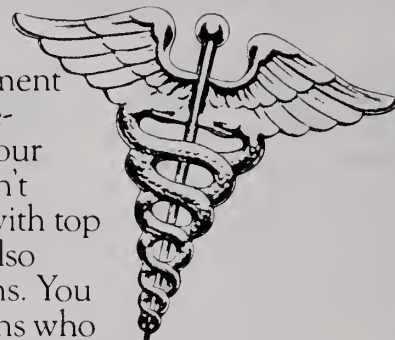
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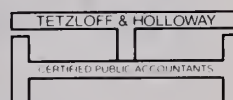
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Malignant Optic Glioma in an Adult

Initial CT Abnormality Limited to the Posterior Orbit, Leptomeningeal Seeding of the Tumor

SIDNEY K. SHAPIRO, M.D. Ph.D.;* IRVING SHAPIRO, M.D.†; JONATHAN D. WIRTSCHAFTER, M.D.‡;
and A. R. MASTRI, M.D.‡

A case is reported of malignant optic glioma of adulthood in which the initial symptoms and CT scan suggested a posterior orbital rather than a chiasmal location. A full thickness biopsy of the optic nerve of the blind eye revealed the correct diagnosis whereas a superficial biopsy was normal. Autopsy revealed that the tumor had spread by way of the leptomeninges and subependymally in addition to direct subpial extension as previously reported.

MALIGNANT OPTIC PATHWAY gliomas in adults usually originate in the chiasm but may originate in one optic nerve. The tumors proceed to extend into proximal and distal structures. The diagnosis of optic glioma in adults can be difficult and until the advent of computed tomography (CT) had not been made frequently antemortem. The symptoms of an optic nerve glioma in an adult may mimic optic neuritis, ischemic optic neuropathy, temporal arteritis, or compressive lesions of the optic pathways. The availability of CT scanning has lessened the diagnostic difficulties but the case presented here illustrates some unusual features, an awareness of which may contribute to early diagnosis. These include: (1) presenting symptoms of uniocular visual loss and CT scan abnormalities suggesting a posterior orbital location, (2) the misleading impression on CT scans of decreased optic nerve thickening after steroid therapy and before biopsy, and (3) false negative superficial anterior optic nerve biopsy. In addition, this case demonstrates that tumor can spread by leptomeningeal tumor implants and subependymally in addition to direct extension.

Case Report

This 60-year-old male had the acute onset of blurring of vision in the right eye noted when he awakened on February 9, 1978. By the time he was examined eleven days later, the patient was unable to

read the newspaper with his right eye. At that time, ophthalmological examination revealed a visual acuity of 6/30 in the right eye compared to 6/6 in the left eye. An afferent pupillary defect was noticed on the right. Fundus examination was entirely negative. Visual field examination revealed marked isopter constriction inferotemporally but this defect extended beyond the midline into the nasal region. The visual field of the left eye was normal. There was no proptosis. Neurological and physical examinations were otherwise negative. Two days later the patient was admitted to the hospital where the physical examination was unchanged. Optic foramen views and skull films were normal. A CT scan of the head which did not include the orbit was normal. Bilateral carotid arteriography was normal. A spinal tap was normal and revealed no tumor cells.

Seven weeks after onset, visual loss continued in the right eye with

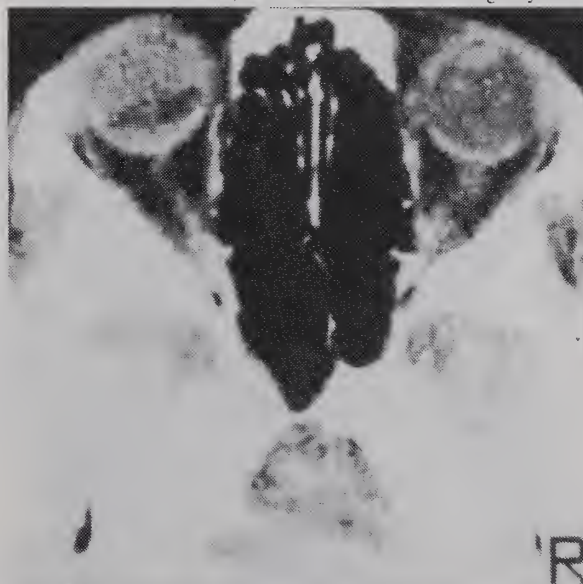


Fig. 1 — Unenhanced CT scan of orbits on 31 March, 1978. The right optic nerve is more than twice as thick as the left. The narrow window width (75 EMI units) permits visualization of the lenses confirming that the section is in the plane of the optic nerves. The posterior orbital portion of the optic nerve appears thicker than the anterior.

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further constriction of the right visual field. The patient was readmitted to the hospital where an ophthalmic B scan was normal, although it was suggested that the right optic nerve might be more prominent than the left. The second CT scan was obtained and this included both the head and orbit. The only abnormality noted was diffuse enlargement of the right optic nerve (Figure 1).

Pneumoencephalography was performed with normal findings including the size of the optic chiasm in the lateral view. The optic nerves were not identified. Abnormal cells were found in the spinal fluid at the time of the pneumoencephalogram and reported as suspicious of malignancy. Other medical investigations including a hematologic investigation directed toward the exclusion of lymphoma were negative. The patient was discharged from the hospital.

On the assumption that the patient had anterior ischemic optic neuropathy, the patient had been placed on alternate day therapy of 100 mgm of Prednisone at the end of the first hospitalization. This was replaced with Acthar gel 40 units every other day. This therapy continued for a total of two months. At the beginning of the third month of the illness the patient had a repeat CT scan of the orbit head which showed faint irregularity of the right optic nerve.

The patient's visual loss progressed in the right eye and ten weeks after the beginning of symptoms the patient was completely blind in the right eye. Twelve weeks after the onset of illness an isolated scotoma involving the superior temporal aspect of the left field, 10-15 degrees from fixation, was noted. The field was interpreted as either nerve fiber bundle defect or indicating a right chiasmal problem. The patient was rehospitalized and a repeat spinal tap failed to demonstrate any tumor cells. The fourth CT scan of the orbit was unequivocally abnormal and showed thickening of the right optic nerve. The thickening of the right optic nerve appeared to extend throughout the orbital course of the nerve to the posterior margin of the globe. (Figure 2). Regular X-ray tomography at the base of the skull showed no erosion of the Sella or anterior clinoids. On the same date, an abdominal CT scan was normal and the steroid therapy was discontinued. It was at this time that the fundus examination first revealed mild pallor on the temporal aspect of the right optic disc.

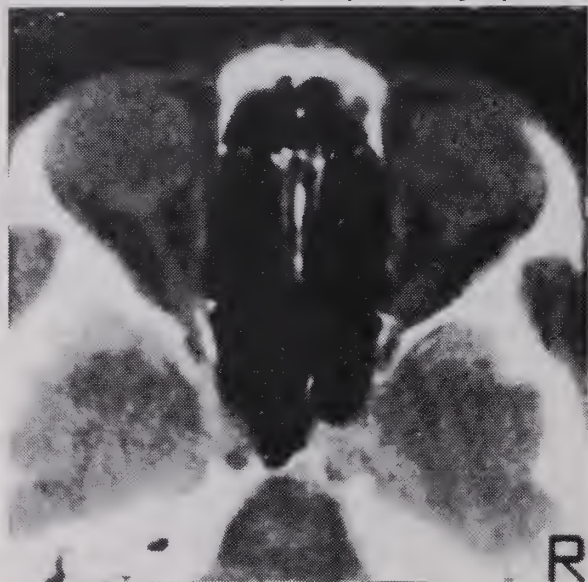


Fig. 2 — Unenhanced CT of orbits on 2 May, 1978. The wider window (200 EMI units) better demonstrates the soft tissue features and continuity of the optic nerves. The right nerve remains more than twice as thick as the left, especially posteriorly. The right nerve is laterally bowed in each view, but does not appear to be displaced as a result of any intraorbital structure.

Two weeks later, the patient underwent a right lateral orbitotomy and an initial biopsy specimen was taken of the superior aspect of the right optic nerve 0.5 centimeters behind the globe. The frozen section was reported as normal and on subsequent paraffin sections this area showed normal nerve and only minor vacuolar degeneration. The adjacent meninges were also normal. A decision was made to transect the optic nerve of the blind eye and a specimen of nerve approximately 1.2 cm. in length, full thickness, was removed behind the point of insertion of the central retinal arteries and veins. On microscopic examination of this, a diagnosis of diffuse optic nerve glioma (astrocytoma grade II) was established. The surrounding dura showed no evidence of malignancy and the skeletal muscle and soft tissue biopsied in the orbit also showed no evidence of tumor.

Although radiation therapy was contemplated, it was decided to perform a right frontal craniotomy to determine if the tumor might be resectable. When the tumor was unresectable, because of involvement of the chiasma and left optic tract, a biopsy was taken of the right optic nerve at the anterior clinoid process. The patient's course after this second operation was complicated by a right frontal hematoma and seizures associated with left sided weakness. Cranial nerve signs were noted for the first time. CT scan showed an increase in ventricular size and lumbar puncture revealed a pressure of 340 mm. of water. Four months after the onset of symptoms, a ventriculo-atrial shunt was placed. The patient deteriorated rapidly with disturbance of mentation and balance difficulty. Six months

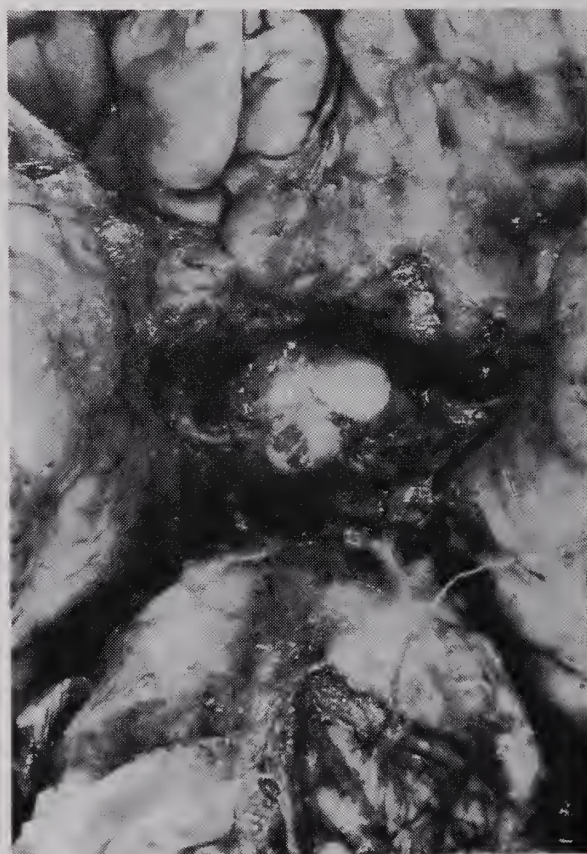


Fig. 3 — The optic nerves and infundibulum are markedly enlarged due to tumor infiltration. The leptomeninges over the base of the frontal lobes at the top are thickened by tumor infiltration. Tumor is also present in the leptomeninges over the surface of the swollen pons.

after onset the patient was re-explored and a biopsy of the hematoma wall revealed tumor elements. The patient expired two weeks later.

Autopsy Findings

The significant findings in the general autopsy consisted of acute necrotizing bronchopneumonia, recent pulmonary embolus and acute prostatitis.

Neuropathological Findings

The brain was diffusely swollen. Both optic nerves were markedly enlarged due to tumor. (Figure 3) The left optic nerve was gray, soft and gelatinous and measured 1 cm. in diameter. The right optic nerve was slightly smaller, firm, white and homogeneous. The tumor infiltrated the optic chiasm, optic tracts and hypothalamus, obscuring the normal landmarks. The leptomeninges at the base of the brain, particularly about the brain stem and cerebellum were diffusely infiltrated by tumor. The third, seventh and eighth nerves, bilaterally, were enlarged. In coronal sections of the cerebrum, the optic nerves, chiasm and hypothalamus were infiltrated by gray-white, homogeneous tumor. Hemorrhagic tumor implants were noted in the walls of the left lateral ventricle. A large, poorly demarcated tumor of variegated appearance diffusely infiltrated the right half of the pons (Figure 4). Leptomeningeal tumor infiltration was widespread but most prominent over the vermis and in the basal cisterna. On microscopic examination, the optic nerves were diffusely infiltrated by moderately cellular tumor composed of small stellate cells (Figure 5). Small foci of necrosis were noted near the periphery of the tumor. The meninges about the nerve were infiltrated by the tumor and showed marked vascular hyperplasia. The tumor in the pons was similar to that in the optic nerves and hypothalamus but appeared more malignant. The tumor cells tended to be more pleomorphic and there was extensive necrosis and pallasading of tumor cells in the tumor in the parenchyma and also in the overlying leptomeninges. The tumor in the parenchyma was in continuity with that in the leptomeninges (Figure 6). There was subependymal spread of the tumor as well. The tumor in the leptomeninges also invaded the medulla and the third, fifth, seventh and eighth cranial nerves, bilaterally. The spinal cord was not examined.

Discussion

In 1973, Hoyt and his associates¹ called attention to the malignant character of the optic gliomas of adulthood. The features stressed included the following: (1) usually involves middle aged adult males, (2) begins with signs and symptoms mimicking optic

neuritis with progressive fundus changes in the blind eyes, (3) progresses within five to six weeks to total blindness, and (4) ends fatally several months thereafter. In the latter stages of the disease, there may

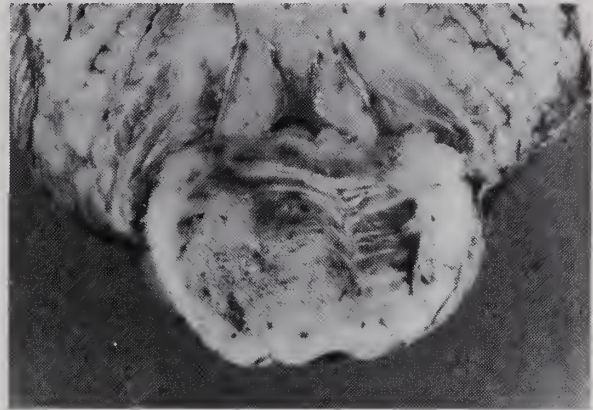


Fig. 4 — The right half of the pons (at left of photograph) is swollen and diffusely infiltrated by glioblastoma. There is also tumor infiltration of the tegmentum and superior cerebellar peduncles, bilaterally. Note the tumor infiltration of the meninges of the pons and cerebellum.

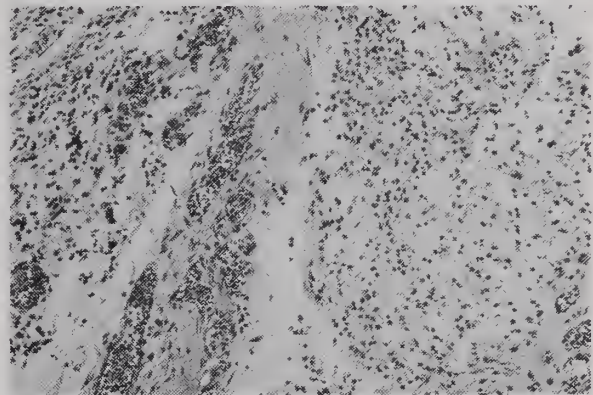


Fig. 5 — The left optic nerve in the right half of the photomicrograph is microcystic and diffusely infiltrated by tumor. The leptomeninges of the optic nerve (at left) are infiltrated by the glioma. There is striking hyperplasia of the blood vessels in the leptomeninges. (hematoxylin and eosin, x125).

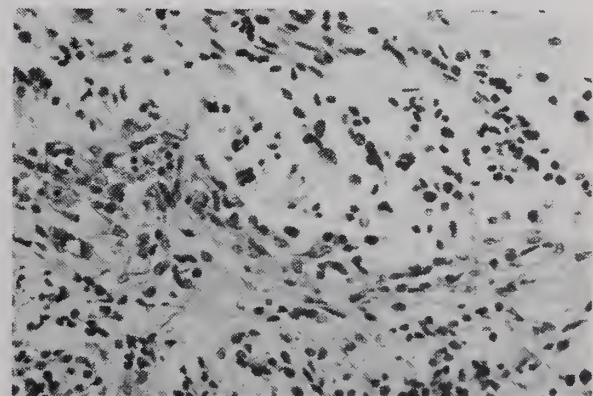


Fig. 6 — Tumor infiltrates the pons (top) and adjacent leptomeninges (bottom). Note the pleomorphism of tumor cells and increase in connective tissue fibers in the leptomeninges. (Hematoxylin and eosin, x320).

be signs of hemiparesis and hypothalamic dysfunction. Elevation of intracranial pressure occurs late if at all. Hoyt stressed the sequence of events in the ocular fundus which can be a distinctive feature of this syndrome. The progressive swelling of an optic disc with superimposed occlusion initially of the veins and then of the arteries occurred in several of his patients. Ischemic signs manifested by disc swelling and subsequent flat white discs and sheathed and thread-like retinal arteries have been reported. Midway through the course of the disease when the patient is almost blind the second eye may develop disc swelling due to the invading glioma and not necessarily due to increased intracranial pressure. Occasionally proptosis, partial ophthalmoplegia and lid edema occur late in the disease and usually herald the spread of the tumor beyond the confines of the optic nerve and its meninges.

Miller, Iliff, and Green² have contrasted the optic nerve gliomas of childhood which frequently involve the anterior or intraorbital visual pathway with the malignant optic glioma of adulthood, which tends to involve the "posterior" or chiasmal portion of the visual pathway. The case presented here indicates that a high order of suspicion will be required even with the more advanced CT scanners that are now available. The advantages of fourth generation CT scanners have recently been described by Dubois, Kennerdell and Rosenbaum³. Neither proptosis or definite fundus findings lead to the belief that any CT abnormality would be found in the orbit.

Harper and Stewart-Wynne⁴ report that the malignant optic gliomas of adulthood seem to extend from the general region of the optic chiasm. In the case reported here, the chiasmal region was normal on initial CT scan, four vessel arteriography, and pneumoencephalography. The optic foramen views were normal. The afferent pupillary reflex abnormality and the visual fields suggested the problem was confined to the right optic nerve and did not further localize the abnormality. One interesting feature of our case was that it presented in a manner consistent with a posterior orbital origin even though there was no proptosis. Diligence in examination and repeat examination of this region with CT scan would be required for early and correct diagnosis.

A second feature of this case which requires comment, is the suggestion by the radiologist that the optic nerve was less thick after a ten day period of steroid therapy. Such an observation could be real or artifactual. Some of these problems can be eliminated by coronal CT scans. Transverse sections or the orbital portion of the optic nerve are subject to

partial volume effects as the nerve moves in and out of the examination plane. Coronal sections of the optic nerve in the orbit avoid this partial volume effect and should be extended to include the optic canals. Unsöld, Norman and Berninger⁵ have stated that computer transformations of 1.5 mm axial transverse sections can be used to create parasagittal sections through the optic canal along the course of the optic nerve or sections perpendicular to the canal. They report that this is more efficacious than hypocycloidal polytomography. In addition, there is a reduced radiation dose. Of course, many tumors respond temporarily to steroids and in this regard it should be noted that tumors misdiagnosed as optic nerve gliomas include lymphoma (reticulum cell sarcoma), Hodgkin's sarcoma, and craniopharyngioma. Other diagnostic problems could include inflammatory masses and meningiomas as reported by Cooling and Wright⁶. It follows that both technical problems and the possibility of multiple entities that can respond to steroid therapy should cause the clinician to be very cautious in drawing any conclusions from CT reports of a decrease in the thickening of the optic nerve.

The last clinical feature requiring comment is the false negative optic nerve biopsy obtained when the orbit was explored using a Kronlein approach. Only when the entire posterior orbital portion of the optic nerve was transected was the correct diagnosis made. Stern, Jakobiec, Housepian⁷ recently reviewed the cytoarchitecture in patients with and without neurofibromatosis. It was noted that there were two patterns: (1) a circumferential-perineural pattern with tumor eruption and proliferation in the perineural space in patients with neurofibromatosis and (2) an expansile-intraneural pattern in patients without neurofibromatosis. The patient presented here conforms to the second pattern and the diagnosis was missed by the initial biopsy which was too superficial and perhaps too anterior in the optic nerve. This problem might also complicate needle biopsy of such tumors as successfully performed by Spoor, Kennerdell, Martinez, and Zorub.⁸

This case is also of neuropathologic interest because of the extensive spread of the malignant glioma by way of the cerebrospinal fluid. In this case, tumor implants were noted on the surface of the septum pellucidum and along the ventricular surface of the corpus callosum of the left lateral ventricle. The tumor also appeared to have extended in the subependymal tissues to the brainstem. The most striking metastasis, however, occurred in the subarachnoid space with subsequent invasion of the pons, medulla and cranial nerves. The neuropathology of such tumors has been

recently reviewed by Harper and Stewart-Wynne.⁴ All of the changes noted in their cases were the result of direct extension either subpial or within the brain itself. The electron microscopic aspects of the malignant optic nerve gliomas have been described by Hamilton, Garner, Tripathi, and Sandler.¹⁰ Gazso, Slowik, and Pasztor¹¹ have recently reported on the cytological characteristics of optic nerve gliomas in cell and tissue cultures. They deal with the interesting lack of

correlation between the low mitotic and the intensive movement of the cultured optic glioma cells. They postulate that the clinical behavior of the tumor may relate to a high degree of mobility of these cases. Huber, Isler and Spiess⁹ have stressed the importance of biopsy in the diagnosis of optic nerve and chiasmal gliomas. This case further indicates the necessity of biopsy at the proper location within the nerve.

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National Institute of Alcohol and Alcohol Abuse

The National Institute of Alcohol and Alcohol Abuse has recently completed a television campaign dealing with fetal alcohol syndrome. Television specials distributed through national networks and to local media points will warn pregnant women against the use of alcohol. The television spots will be aired with frequency throughout March, April and May. For professional materials dealing with fetal alcohol syndrome and brochures for public use, you may contact the Minnesota Prevention Resource Center, a division of the Minnesota Institute, 2829 Verndale Avenue, Anoka, MN 55303 (612-427-5310).

Continuing Medical Education Black Hills Seminar

The Fifth Annual Black Hills Seminar on Advances in Clinical Pediatrics — June 16-18, 1982, at Sylvan Lake Resort, Custer, South Dakota, sponsored by the Department of Pediatrics and Adolescent Medicine, University of South Dakota School of Medicine. Guest faculty include Drs. Hugh Moffett, Jane Schaller, Sylvan Stool and William Strong. For complete conference information contact:

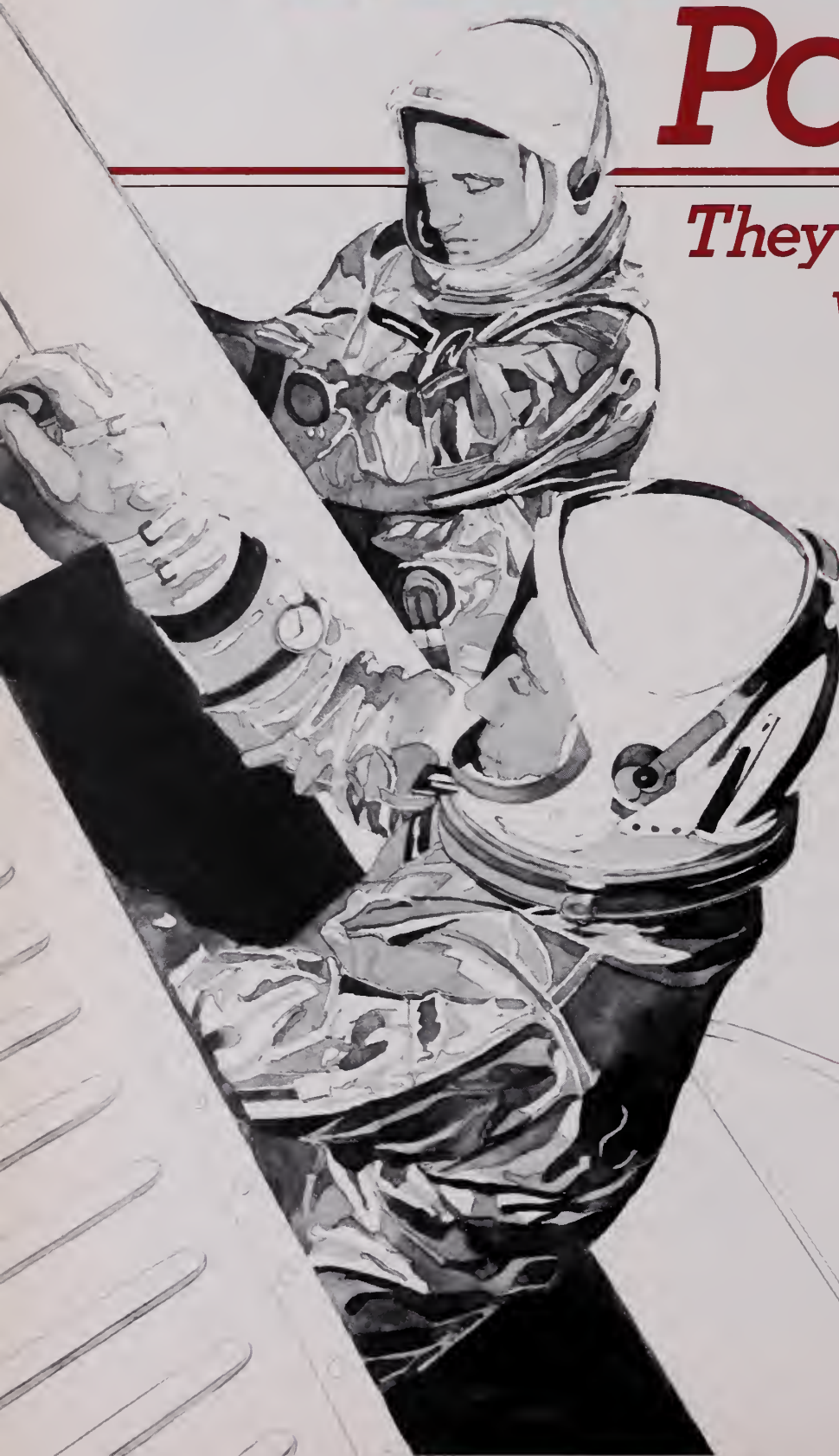
Lawrence R. Wellman, M.D., Program Coordinator, Department of Pediatrics, University of South Dakota, School of Medicine, 1100 S. Euclid, Sioux Falls, South Dakota 57117-5039, 605-339-6578.

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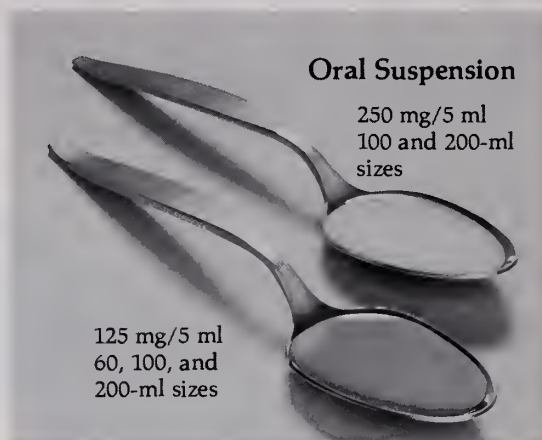
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* Meeting of Am Soc Colon/Rectal Surgeons, May 1980.

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Retrieval of Kidneys for Transplantation from Cadaver Donors in Minnesota

ARTHUR J. MATAS, M.D.;* DAVID E. R. SUTHERLAND, M.D., Ph.D.;* WILLIAM D. PAYNE, M.D.;*
E. JANE VAN HOOK, R.N.;* RICHARD L. SIMMONS, M.D.;* and JOHN S. NAJARIAN, M.D.*

From 1972 through 1980 the University Transplant Team removed more than 600 kidneys from cadaver donors for transplantation. Community hospitals are the major source of kidneys. The distribution of kidneys and the donation process are described.

MORE THAN 1,500 renal transplants have been performed at the University of Minnesota. Additional transplants are done in Minnesota at the Mayo Clinic, Hennepin County Medical Center, and at the Minneapolis Veterans Administration Hospital. Transplantation is the treatment of choice for most patients with end stage renal failure. Studies comparing dialysis and transplantation in the treatment of patients with renal failure have concluded that from a psychosocial and cost effective point of view, transplantation is better than hospital dialysis and probably better than home dialysis.

Transplantation of kidneys from living related donors results in better long-term graft survival than transplantation from cadaver donors. However, not all patients have relatives capable or willing to donate a kidney. In addition, potential related donors are extensively evaluated, and only completely healthy relatives with no evidence of renal disease are used. Thus many willing donors are excluded and as a result, many patients are left without related donors and must

be maintained on hemodialysis until a suitable kidney from a brain-dead cadaver donor is found.

Forty to fifty percent of our kidney transplants annually have been from cadaver donors. Several years ago we found that the closer the genetic identity between cadaver donor and the potential recipient, the better the results of transplantation.¹ Genetic identity is gauged by cell surface markers termed histocompatibility (HLA) or transplantation antigens. Review of our data shows that patients who receive kidneys from donors with whom they share two or more HLA antigens are less likely to reject the graft than those receiving a kidney with a poor match. Because of these findings, we now transplant cadaver kidneys to patients who are at least a two antigen match with the donor. Kidneys from donors who are not a good match with any of our patients are sent to other transplant centers throughout the country; no kidneys go unused. All patients with renal failure in the United States who are awaiting transplantation with a cadaver kidney are listed on a computer program. The patient's HLA antigens are also listed. Therefore, we are able to send kidneys to places that have a patient who shares HLA antigens with the donor.

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Address reprint requests to Dr. Sutherland, Box 253 Mayo Memorial Bldg., University of Minnesota, 420 Delaware Street S.E., Minneapolis, Minnesota 55455.

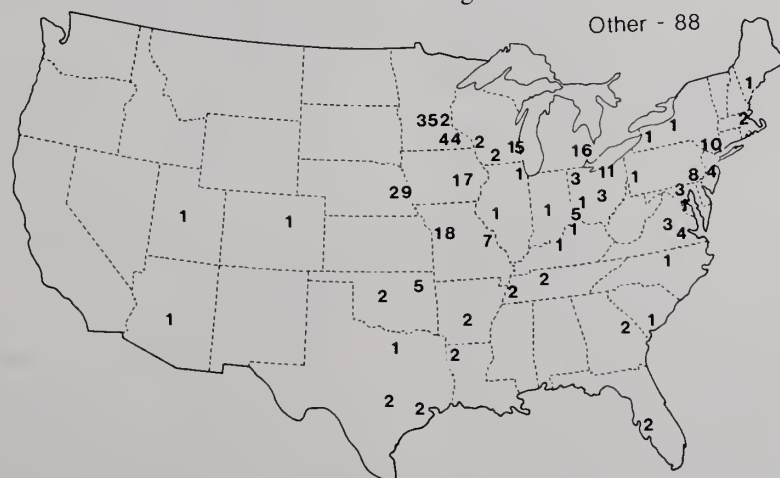


Figure — Distribution and number of transplants done at various cities in the United States using kidneys removed from cadaver donors by the University of Minnesota Transplant Team.

Similarly, other centers send us kidneys that have a good antigen match with our patients. Even with this policy of sharing, the number of kidneys we retrieve locally is inadequate to treat the number of patients waiting for transplantation. Our list of potential recipients continues to grow. In 1973 approximately 40 patients were waiting for a transplant from a cadaver donor. Currently, 113 patients are waiting for a transplant.

Organ Retrieval at Local Hospitals

Postmortem organ donation within Minnesota increased progressively during the early 1970s, in large measure because of publicity in the local newspapers, the activities of the Kidney Foundation, and the inclusion of an organ donation permit on drivers' licenses. In many instances, the family of the deceased takes the initiative and requests organ donation. Currently, we remove nearly 100 kidneys a year from cadaver donors for transplantation; Hennepin County Medical Center, the Mayo Clinic and surgeons in Duluth also retrieve kidneys. Nevertheless, the number of transplants performed remains limited because an insufficient number of potential cadaver donors are used for organ donation.

A major source of cadaver donors is the community hospital. Accident victims are usually transported to and first seen at local trauma centers. There are a number of advantages of procurement of organs at the local community hospital: (1) elimination of the need to transfer the donor, thus enabling the family to maintain continuity of care with their personal physician; (2) elimination of the psychological problems for the family of adapting to a new hospital environment and doctors unacquainted with the donor's previous care, as well as the emotional problems of having a "dead" relative transported with life support systems working; and (3) minimizing the chance that the donor will suffer a cardio-pulmonary arrest before the organs can be saved.

Kidneys can be preserved for up to 72 hours following retrieval. We use the Mox-100 (Waters Company, Rochester, Minnesota) machine for continuous pulsatile perfusion of the kidney under hypothermic conditions. Kidneys maintained on this machine will function normally after transplantation.² Preservation allows kidneys to be retrieved at a local hospital and transported to the University of Minnesota. After tissue typing is completed, the kidneys can be used locally or shipped to another center for transplantation to the best matched recipient within the

United States.

The University of Minnesota Team

We maintain a team consisting of transplant surgeon, assistant surgeon (resident in training), transplant donor coordinator, and tissue preservation technician. The team is available 24 hours per day for organ retrieval or discussion of the potential acceptance of a donor.* In addition, the transplant coordinator travels to interested hospitals to provide information on transplantation, assists in the identification of potential donors, discusses the criteria for donor acceptance, outlines the care and maintenance of potential donors, and gives guidance for interaction with the families of cadaver donors.

The surgical team functions in two ways. First, they travel to community hospitals for organ retrieval. The advantages of local retrieval are discussed above. In such circumstances, all equipment needed for organ preservation is brought to the community hospital. Second, if preferred by the local hospital, the team will arrange to have potential donors transported to the University for organ removal. The advantages to the local hospital are: (a) intensive care nurses' time and operating room time is not tied up, and (b) in some circumstances physicians, nurses and families are uncomfortable in observing maintained cardio-respiratory function in a patient who has been pronounced dead. A further advantage to the transplant team is that when the patient is transferred to the University additional organs (heart, liver, pancreas) can be removed and used for transplantation.

Function of the Community Hospital in Organ Donation

The community hospital and staff are essential in determining which patients are candidates for organ donation and, in some cases, discussing the potential for organ donation with the family³. Some families will initiate the idea of organ donation; others will also agree if the suggestion is made. As the circumstances are always unhappy and the family suffering greatly, suggesting organ donation always requires sensitivity. However, many families eagerly agree, recognizing that some potential good may be salvaged from their personal tragedy.

Following this initial step, the community hospital continues to maintain an important role. The donor must be managed (see below) in order to maintain maximum organ viability and function. In addition, the best environment must be created for the relatives so that they accept the death and continue to support organ donation.

*The team can be reached at anytime by calling 612-373-8322.

Kidney Retrieval by University of Minnesota Team Since 1973

The number of cadaver kidneys retrieved by our team since 1973 is summarized in Table 1. Annually 55-80% of the kidneys were retrieved from within the Minneapolis/St. Paul area. The other kidneys have come from other cities and trauma centers within Minnesota and from Wisconsin, North and South Dakota.

The fate of these kidneys is shown in Table 2. Initially 40% were transplanted at the University of Minnesota. However, as we developed our policy of using ≥ 2 antigen matches and as techniques of organ preservation have improved we now transplant approximately 30% of locally retrieved kidneys. To date, 396 patients in Minnesota have received a kidney retrieved by our team; 234 of these patients have been transplanted at the University of Minnesota, the remainder have been transplanted at other centers (Mayo Clinic, Hennepin County Medical Center, Veterans Administration Hospital) (Table 2). Those kidneys not utilized in Minnesota are transplanted at centers throughout the country (Table 2, Figure). Nevertheless, many patients are not transplanted because the number of brain-dead cadavers offered for organ donation is too few.

Criteria for Donor Acceptance

In Minnesota, the usual candidates for cadaver organ donation are young and middle-age patients involved in various traumatic accidents (most often motor vehicle) with injuries primarily limited to the head. Brain (neurologic) death is the most frequent circumstance leading to organ donation. Stroke victims, particularly if they are young, may also be

donors. Under these conditions, cardiac function and respiratory support should be maintained and consent for organ donation obtained. If the donor has stable vital signs and evidence of kidney function, there is usually time for the organ procurement team to travel to the hospital or to arrange for transfer to the University.

The criteria for consideration as an organ donor are listed in Table 3. The essential features are neurologic death, no evidence of sepsis, malignancy, or renal disease, and family consent. The criteria for determination of brain death are the recommendations of the Ad Hoc Committee on Death of the Minnesota Medical Association and are intended to provide consistency and guidance in the pronouncement of death by physicians throughout Minnesota (Table 4). It should be noted that, when brain death is determined according to these criteria a confirmatory EEG is not mandatory in adults.⁴

TABLE 3

Criteria for Consideration as Organ Donor

1. Brain Death
2. Age less than 65
3. No Systemic Sepsis
4. No Cancer Outside the Central Nervous System
5. No Premortem Disease of the Transplantable Organs
6. Consent

The essential facts that must be documented before acceptance as a kidney donor are absence of previous renal disease and a normal urinalysis. In cases of trauma there is frequently slight hematuria which does not preclude utilization of the organs. Often, premortem oliguria is iatrogenically induced by dehydration during treatment of cerebral edema in the neurologically injured patient. Oliguria explained on this basis does not exclude organ donation since urine output is

TABLE 1

Number of Retrieved Kidneys By University of Minnesota Team 1973-July, 1980

	1973	1974	1975	1976	1977	1978	1979	1980
Minneapolis-St. Paul	53	53	74	42	73	72	58	73
Outside Metro	22	10	16	36	30	24	30	20
Total	75	63	90	78	103	96	88	93

TABLE 2

Fate of Kidneys Harvested by University of Minnesota Team (by Year)

	1973	1974	1975	1976	1977	1978	1979	1980
No. Kidneys	75	63	90	78	103	96	88	93
No. Transplanted at University of Minnesota	32	25	36	20	35	34	22	30
No. Transplant in Minnesota (Hennepin County, Veterans Administration, Mayo Clinic)	28	7	22	24	19	17	28	17
No. Transplanted Other States	15	31	42	34	47	45	38	46

usually corrected by adequate parenteral therapy. Renal failure secondary to the hepatorenal syndrome does not eliminate the use of those kidneys, since renal function will return upon implantation into a new host.

Maintenance of Organ Function after Brain Death

When cerebral death has been pronounced and donor acceptance determined, management involves the maintenance of the cardiac, pulmonary, and organ functions. An appropriate management plan consists of the three following broad categories: (1) documentation of satisfactory organ function (renal status); (2) supportive measures for cardiopulmonary system; and (3) supportive measures for renal function.

Ideal support of the cardiopulmonary system should maintain vital sign values within certain limits (Table 5). The use of vasopressor drugs to achieve these values is avoided when possible. When necessary Dopamine (two ampules in 500 cc 5% Dextrose in H₂O) is given by microdrip at a rate which maintains blood pressure.

Ideally, urine output is maintained at > 100 ml/hr. Many patients are dehydrated because of treatment for their head injury. Therefore, the first step is rehydration (Table 6). After hypovolemia is corrected, a crystalloid solution (D₅W 1/2 NS with 20 mEq KCl/L) is administered at a rate which enables hourly replacement of urine volumes. Colloid is given as needed to maintain blood pressure and central venous pressure. If blood pressure and central venous pressure respond to fluid administration, but urine output does not increase, urine can be stimulated with boluses of Lasix (as little as 2.5 mg or as much as 500 mg may be required) or with a Lasix-Mannitol drip (500 mg Lasix in 500 ml 20% Mannitol) run at a rate to maintain urinary output at 100 ml/hr (Table 5). When these guidelines are followed, almost all patients can be maintained until kidneys are removed.

Summary and Conclusions

1. Since 1973, 396 patients in Minnesota with end stage renal disease have received a cadaver renal transplant from a kidney harvested by the University of Minnesota team from donors in the Minnesota area.
2. The majority of the donors came from community hospitals.

3. The community hospital can play a major role in the treatment of end stage renal disease by transplantation.

4. Arrangements on consultation regarding cadaver donation can be made 24 hours a day by calling 612-373-8322, the Transplant Station 22 at the University of Minnesota Hospitals, and asking for the cadaver donor nurse coordinator or other members of the transplant team to be contacted.

TABLE 4

Criteria of Cerebral Death

1. No Spontaneous Movement
2. No Spontaneous Respiration when Tested for a Period of 4 Minutes at a Time
3. Absence of Brain Stem Reflexes:
 - (a) dilated and fixed pupils
 - (b) absent corneal reflexes
 - (c) absent ciliospinal reflexes
 - (d) absent Doll's head phenomena
 - (e) absent gag reflex
 - (f) absent vestibular response to caloric stimulation
4. A Status in which all of the Findings Above Remain Unchanged for at Least 12 Hours
5. Brain Death can be Pronounced Only if the Pathological Processes Responsible for the Above are Deemed Irreparable with Presently Available Means
6. If These Criteria are Strictly Applied, a Confirmatory EEG is not Necessary

TABLE 5

Ideal Systemic Parameters

Systolic Blood Pressure	100 < BP < 180 mmHG
Pulse	60 < P < 120 /min
CVP	10 < CVP < 15 cm H ₂ O

TABLE 6

Maintenance of BP; CVP; Urine Output in the Potential Donor

1. Increase CVP to 10-15 cm H₂O by correcting any initial hypovolemia with whole blood or plasma (plasma protein fraction); BP usually responds
2. Maintain BP > 100 mmHg; CVP > 10-15 cm H₂O with a colloid solution (plasma, plasma fraction, blood) given in volumes as required
3. Maintain urine output at 100 ml/hr by administering a crystalloid solution (D₅W_{1/2} NS with 25 mEq/L KCl) in a volume equal to the hourly urine output
4. Low urine output in the presence of adequate BP, CVP, and fluid administration can be corrected with intermittent intravenous boluses of Lasix or with Lasix and Mannitol solution (500 mg Lasix in 500 ml 20% Mannitol) given at a rate sufficient to stimulate urine production

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Spinal Cord Injured Graduates of A Transitional Residential Program

An Evaluation of Thirty-Three

RICHARD R. OWEN, M.D.* and DIANE GARETZ, M.A.†

THIS ARTICLE DESCRIBES an evaluation of thirty-three spinal cord injured graduates of a multi-service transitional residence on variables of self-care skills, living arrangements, driving, vocational status, education and health. The purpose of the evaluation was to determine whether such a program is effective in promoting increased independence and self-care in its clientele.

Independence for the physically handicapped individual actually requires, in most instances, a greater degree of dependence on others than is the case with the able bodied. Successful adjustment to a handicap requires a realistic use of help from others; the important issue is that the physically disabled person should be in charge of his/her own life regardless of how dependent he/she may be on others.

Courage Residence which is housed in Courage Center, Minneapolis, Minnesota, is a sixty-four bed transitional living facility for the developmentally disabled and spinal cord injured. Among the services available to residents are nursing care, vocational and psycho-social counseling, speech, physical and occupational therapy, recreational and enrichment classes, discharge planning and follow-up services. Its major objective is the furthering of the potential of handicapped individuals to achieve an optimal level of independence — physically, socially, emotionally and vocationally.

Method

The medical records were reviewed on all spinal cord injured who had completed their residential stay at Courage Residence during July 1, 1975 through December 31, 1978.† This cut-off date allowed equitable time periods for comparison of hospitalization data both before and after residence at Courage Center.

*Dr. Richard R. Owen, was director of the spinal cord injury study at Courage Center and is Medical Director of Sister Kenny Institute, Minneapolis.

†Diane Garetz is the President of Archer Diversified Services, a consulting firm which coordinated the writing and research on the spinal cord injured graduates of Courage Residence.

‡Three graduates during that period were not included in the study because of medical, legal and financial reasons.

The following information was obtained from their records: gender, disability level, length of stay at the Residence, activities of daily living, dwelling situation, mobility, education and work history.

The graduates were then interviewed. The lapse of time between discharge and follow-up interviews ranged from 9 to 41 months. The average time between graduation and interviews was 17.8 months. Three interviewers, using a standard interview protocol and all being familiar with the graduates during their residency, determined follow-up status on all variables obtained from the original medical records.

In addition, the number of hospitalizations incurred both before Residency and after discharge were determined from records and interviews. These hospitalizations did not include the acute hospital/rehabilitation phase immediately following injury.

A five member evaluation team consisting of a physiatrist, a statistical consultant, two interviewers and a research coordinator reviewed each case and came to a consensus as to whether the subject had improved, was unchanged or regressed on each individual variable and in overall adjustment.

A decision was made to base improvement on six key variables involved in independent living: (1) Transfers, (2) Urinary Drainage Capability (leg bag emptying) (3) Education (4) Dwelling Situation, (5) Driver Licensure and (6) Vocational Attainment.

If a client had progressed on more variables than he/she had regressed since entering the Residence, that person was considered to have improved; that is, become more independent.

Data

All of the graduates were admitted to Courage Center following an initial rehabilitation program elsewhere. Most had been living with parents or in nursing homes prior to admission.

Thirty-three individuals were discharged during the 2½ year period covered by this study — 29 quadriplegics and 4 paraplegics.

Of the twenty-nine quadriplegics, six were at the

cervical 3-4 complete level; fifteen were at the cervical 5-6 complete level; one was cervical 7 complete; and seven had incomplete lesions. All of the last group were functionally quadriplegic.

Of the thirty-three graduates, all were judged to have become more independent upon completion of their program at Courage Residence. A more detailed presentation of the data, as shown in Tables 1 and 2, follows: (a) 14 of the 33 improved in transfer skills. (b) 19 became independent in leg bag emptying¹. (c) 8 became licensed following driver's education at Courage Center. (d) 32 are now living in an independent situation with spouse, friends, or attendant rather than with nuclear family or in an institution. (e) Eight out of 33 are employed for pay either full or part time which is an improvement over their

experience before entering the Residence; three are at a lower level vocationally. (f) Twenty-one acquired further education. (g) The average number of hospital days per year which graduates of the Residence incurred, both before admission to the Residence and since they have left are as follows: The pre-Courage Residence total for the thirty-three graduates per year was 943 days with a range of from 0-254 days, whereas the post-Courage Residence total days per year was 200 with a range of from 0 to 44 days. The pre-Courage Residence average stay per individual is 31.4 days. The post-Courage Residence yearly average stay per individual is 6.6 days.

Case Reports

Some individual cases of interest are as follows:

Case #25 received a cervical 5/cervical 6 injury in a diving

TABLE 1

Details of Individual Change in Six Key Variables for Each of 33 Spinal Cord Injured Graduates of Courage Residence*

Activities of Daily Living		Transfers	Leg Bag Emptying	Education	Dwelling	Driving	Vocational	Clearly Improved
1		S	S	M	S	S	M	Yes
2		S	M	M	M	S	S	Yes
3		S	S	M	M	S	S	Yes
4		M	S	M	M	M	M	Yes
5		M	M	M	S	M	M	Yes
6		M	M	M	M	M	S	Yes
7		S	S	M	S	S	S	Yes
8		S	M	M	M	S	S	Yes
9		S	S	S	M	S	S	Yes
10		Dropped	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
11		S	S	M	M	S	S	Yes
12		M	M	S	M	M	M	Yes
13		M	M	M	M	S	M	Yes
14		Data Lost	M	M	M	S	S	Yes
15		S	S	M	M	S	L	Yes
16		S	S	M	M	S	M	Yes
17		S	M	S	M	S	S	Yes
18		M	M	M	M	S	S	Yes
19		M	S	S	M	S	S	Yes
20		S	S	S	M	S	S	Yes
21		S	M	S	M	S	S	Yes
22		M	M	S	M	S	M	Yes
23		M	M	M	M	S	L	Yes
24		M	M	M	M	S	S	Yes
25		S	M	M	M	M	S	Yes
26		S	M	M	M	M	S	Yes
27		S	S	S	M	S	S	Yes
28		M	M	M	M	M	S	Yes
29		M	M	S	M	S	M	Yes
30		M	M	S	M	S	S	Yes
31		S	M	M	M	S	S	Yes
32		M	M	M	M	M	S	Yes
33		S	M	S	M	S	L	Yes
34		Dropped	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
35		S	S	S	M	S	S	Yes
36		Dropped	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped

M = more than at admission

L = less than at admission

S = same as at admission

Yes = Clearly improved at the Residence No = Not clearly improved at the Residence

*Three additional graduates were dropped from the study for legal, medical and financial reasons.

accident at the age of 16. He had been in the hospital numerous times for a total of ten months before entering the Residence at the age of 20. At entry he was thin and had two large decubiti. At the Residence he learned self-care and self-responsibility and since discharge has had no additional hospitalizations. He is now a licensed driver, lives alone in an apartment with attendant care, attends school full time and is a volunteer at Courage Center.

Case #12 was injured while diving. Although suffering a cervical 3/cervical 4 injury, he and his parents firmly believed he would be able to walk again. At the Residence he learned to accept his disability. He was the first person to become a licensed driver at the Courage Center; had summer jobs and is now in school full time. A possible loss of medical assistance prevents his seeking full time employment.

Case #29, a high school athlete, was also injured in a diving accident. He earned a BA in social work, couldn't find a job and lived in a limited life style with his parents. Upon discharge from the Residence, he moved into an apartment with an attendant. He would like to marry her, but would lose his medical assistance benefits if he were to do so. He is a successful promoter for a musical rock group, a job which he has held since discharge over three years ago.

Discussion

We were interested in pursuing the relative costs of care for quadriplegics who had not had the benefit of the transitional living program at Courage Center with ones who had. We, therefore, asked one of our former residents, a cervical six quadriplegic, to give us an anecdotal account of the cost of nursing home care in Minneapolis and contrast it to his own independent style of living. The approximate cost of a nursing home which could service handicapped young adults is \$29,000 a year for room, board, nursing care and occupational therapy. Physical therapy, medications and medical services are extra.

The yearly independent living expense of the former resident, which includes attendant care, food, rent and hired personnel for housekeeping chores, amounts to approximately \$16,000 a year. The feeling of well-being associated with this state of independence obviously cannot be measured in dollars and cents.

Prior to admittance at Courage Residence, the primary emphasis in the lives of the majority of these thirty-three individuals was on disability and dependence upon others. Illness was rewarded by attention from care-givers and may be one of the major reasons for the frequent hospitalizations prior to Courage Residence. Minimal levels of self-care skills and activity, (additional causes for the hospitalizations), were frequently noted due to the living situations, level of disability, dis-interest and lack of stimulation in their previous environments.

In Courage Residence, the focus is directed away from disability and illness, and aimed instead toward successful self-management and independence. A principle goal at Courage Residence is that the resident learns to act like a self-dependent adult and to accept being treated as an adult. This includes assuming responsibility for his/her own decisions and behavior and clarifying his/her own values. Upon entry, residents participate in setting contract goals with professional staff members. These goals are re-evaluated and upgraded each month. Residents are given every opportunity and are helped by staff and peers to move at a pace which is commensurable with entry level of maturity and degree of physical disability. Those residents, however, who are not willing or able to assume responsibility for their own decisions and behavior or who do not take seriously the notion that they are expected to aspire to adult behavior, are not continued in the program. This is a rare occurrence, however.

Recommendations

The reduced need for health care in response to the change in focus from illness to wellness and from management by others to management by one's self

TABLE 2

Summary of Change in Status of 33 Spinal Cord Injured Graduates with Regard to Transfers, Leg Bag Emptying, Driver Licensure, Vocation, Education and Housing Situation

	Having skill at Entrance	Improvement in skill during Residence	Independent in skill at discharge
1) Transfers	2	14	11
2) Leg Bag Emptying (urine)	5	21	24
3) Driver Licensure	3	8	11
4) Vocational	Eight at higher level than at entry; three at lower level; Twenty-one at same level as at entry.		
5) Education	Twenty-one received further education.		
6) Housing	Thirty-two are now living independently; thirty-two were formerly living in a dependent situation.		

Hospitalizations Incurred After Acute Hospital/Rehabilitation Phase

	Before Courage Residence	After Courage Residence
Total days for 33 spinal cord injured	943	200
Range of hospitalizations	0-254 days	0-44 days
Average days spent per individual	31.4	6.6

was one of the most exciting outcomes of this study. As a result of this evaluation and of our personal experience of over twenty years in the rehabilitation field, we would like to emphasize five main points which would improve the potential for self-realization of the spinal cord injured:

1. Implement concepts of ability, wellness and self-management early in order to help the individual avoid being fixated in the role of ever-lasting patient.

2. Encourage the spinal cord injured person to manage attendant care and homemaking money in order to exert greater control over his/her options.

3. Make available a wide variety of individualized living situations to accommodate the variety of personalities and personal needs of handicapped individuals. This might include group homes with supervised living situations, apartments with shared attendant care, family dwelling with remuneration for use of space and care by family members, and institutional care for those who would prefer that choice.

4. Provide opportunities to work for pay. The limited income one is allowed to earn in conjunction with medical assistance programs is demeaning to handicapped individuals and forces them into the role of either volunteer or part time minimum wage level worker. The relatively poor outcome in vocational adjustment is a reflection of this problem of work disincentives. Currently, quadriplegics and their significant others are being punished for wanting to be industrious, for wanting to marry, or for wanting to live with their nuclear family, since financial aid is

substantially reduced, eliminated, or non-existent under any of those circumstances in spite of ongoing need.

5. Develop new and creative employment opportunities for the handicapped which will make use of their potential and desire for independence. Dividing major jobs into component parts which can be successfully performed by several individuals having differing skills and levels of function is one such employment possibility. An attendant pool at the employment site and reduction of architectural barriers are other obvious examples.

Summary

The evaluation of outcomes on thirty-three spinal cord injured graduates of a multi-service transitional care facility yielded positive results on self-care skills of transfers and leg bag emptying; driver licensure; and independent living arrangements. The constraints of work disincentives negatively influenced the vocational adjustment of the graduates; education increased and hospitalizations were appreciably reduced following their stay at Courage Residence. All of the graduates clearly improved, that is, became more independent. The data seemingly indicates that a quality transitional care facility is of financial and humanitarian benefit to both the spinal cord injured person and to the community.

Acknowledgment

The authors wish to express their gratitude to the staff, residents and Board of Courage Center whose cooperation and funding made this study possible.

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MINNESOTA MEDICINE COVERS

Dr. Bruce Nydahl, Cover Editor, and the Board of Editors of MINNESOTA MEDICINE invite physicians to send in their 35 mm slides for possible covers for MINNESOTA MEDICINE. Scenic slides of Minnesota representing the seasons or slides having artistic merit are invited. However, we encourage you to send in slides of other areas or countries.

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Summer scenes are needed particularly at the present time.

Minnesota Medical Association

1982-83 MMA State Officer Nominee Profiles

Officers of the MMA will be elected by the MMA House of Delegates on May 28, 1982 at the MMA Annual Meeting. The nominees listed below are submitted by the Nominating Committee. In addition, any delegate may make nominations from the floor of the House after the report of the Nominating Committee.

Each elected nominee will assume office at the conclusion of the 1982 Annual Meeting. The current president-elect, Dr. Severin H. Koop, St. Cloud, was elected in 1981 and will become president after the 1982 Annual Meeting concludes.

President-Elect

Donald C. Bell, M.D.

Dr. Donald C. Bell is board certified in internal medicine and practices in Minneapolis. Dr. Bell served as chairman of the committee that established the Hennepin County Medical Society's Centralized Credentialing Program. From 1974 to 1975, Dr. Bell served as first vice-president on the Hennepin County Medical Society's Board of Directors. In 1978, Dr. Bell served as chairman of the board of the Foundation for Health Care Evaluation. Dr. Bell was elected to the MMA Board of Trustees in 1979 and re-elected in 1980 for a three year term that expires in 1983. He chairs the MMA Committee on Ethics and Medical-Legal Affairs and is a member of the Ad Hoc Committee on Health Care Competition and Regulation. Dr. Bell is a member of the AMA.

Vice-President

M. Elizabeth Craig, M.D.

Dr. M. Elizabeth Craig is a pediatrician in St. Louis Park. Dr. Craig is completing her first term as vice-president. She has served as an MMA delegate from Hennepin County since 1979, and she is a member of the AMA. In 1978, she held the position of chief-of-staff at Methodist Hospital in St. Louis Park. Currently, she is a member of the MMA Public Health and Education Committee.

Secretary

Phil C. Roy, Jr., M.D.

Dr. Phil C. Roy, Jr., is serving his second term as Secretary of the MMA. He is board certified in general surgery and practices in St. Paul. After serving as the MMA alternate delegate from 1975 to 1977, he became an MMA delegate in 1978 from Ramsey County. Dr. Roy is a member of the American College of Surgeons, the American Board of Surgery, and the St. Paul and Minnesota Surgical Societies and the AMA. He is alternate chairman of the MMA Committee on Administration and Finance.

Ellen R. Stubbs, M.D.

Dr. Ellen R. Stubbs is engaged in family practice in St. Paul. She is board certified and she is a member of the AMA. Since 1979, Dr. Stubbs has served as an MMA delegate from Ramsey County. From 1978 to 1979, she served as CME chairman for the Ramsey County Medical Society and was a member of the RCMS Membership Committee from 1980 to 1981. She is chairperson of the MMA Committee on Women Physicians.

MMA STATE OFFICER NOMINEE PROFILES

Treasurer

Paul S. Blake, M.D.

Dr. Paul S. Blake has served as MMA treasurer since 1977. He is chairman of the Administration and Finance Committee of the Board of Trustees. In addition, he is a MMA Delegate and a member of the AMA. Board certified in neurosurgery, Dr. Blake practices in Minneapolis. Dr. Blake is a past president of the Hennepin County Medical Society and has served on the MMA Permanent Evaluation Committee and the Scholarship and Loans Committee.

Speaker of the House of Delegates

Richard K. Simmons, M.D.

Dr. Richard K. Simmons is serving his first term as Speaker of the MMA House of Delegates. He was elected vice-speaker of the House in 1980. He previously served as an MMA delegate. He is board certified in family practice and he has held numerous positions and offices in the Minnesota Academy of Family Practice. He received the 1979-80 Merit Award of MAFP. Dr. Simmons is a past president and past chairman of the board of the Physicians Health Plan (PHP). Currently, he serves as medical director of PHP. Since 1979, Dr. Simmons has served as a member of the board of directors of the American Association of Foundations for Health Care. From 1973 to 1976, Dr. Simmons was a member of the board of directors of the Hennepin County Medical Society. He is a member of the MMA Awards Committee and the AMA.

Vice-Speaker of the House of Delegates

Burton M. Onofrio, M.D.

Dr. Burton M. Onofrio is certified by the American Board of Neurological Surgery and is associate professor of neurosurgery, Mayo Medical School, Rochester. He is a consultant in neurological surgery at the Mayo Clinic. Dr. Onofrio is completing his first term as vice-speaker. His professional memberships include the Southern Minnesota Medical Association, Minnesota Neurological Society, American Academy of Neurological Surgery, American College of Surgeons, and American Association of Neurological Surgeons. Dr. Onofrio is a member of the MMA Interspecialty Council representing the Minnesota Neurosurgical Society. He is also an alternate MMA Delegate representing the Zumbro Valley Medical Society and an AMA member.

Anti-receptor Antibodies

A Fascinating New Concept in Clinical Medicine

RALPH C. WILLIAMS, JR., M.D.

Anti-receptor immune responses appear to play a central role in a number of diverse human disease states including myasthenia gravis, some patients with insulin-resistant diabetes, and thyrotoxicosis. Isolation and biochemical characterization of the acetylcholine receptor from electric eels provided a technical breakthrough which greatly stimulated work in this area. There is also now a growing body of evidence that natural regulation of the immune response may take place by antibodies to receptor sites of initially reacting antibodies or immune cells. A number of human diseases of unknown etiology may eventually be related to similar mechanisms.

FOR YEARS THE immune response of patients to external antigens such as pathogenic bacteria, viruses, potential allergens or toxins has occupied a substantial part of our attention in clinical medicine. This emphasis has been entirely appropriate and has resulted in a number of practical achievements which have improved health care and health delivery throughout the world. Specific examples of practical accomplishments where basic research in immunobiology has borne positive fruits can be enumerated in such areas as the polio vaccine, renal transplantation, immunosuppressive therapy, and more recently the implementation of a vaccine to protect against pneumococcal infection^{1,2}.

In addition basic studies of underlying mechanisms at work in the immune response have provided key knowledge into the ways that the body deals with tumors as well as insight into built-in features which allow for recognition of self and non-self determinants³. Specific studies of both tissue antigens and the complex series of events involved in tissue recognition have provided understanding which has also been of practical usefulness in such areas as renal or pancreatic transplantation, maintenance of normal maternal-fetal relationships, or even in the immunotherapy of certain human tumors. One of the most exciting areas in the development of modern clinical immunology has been in the ever-broadening perception of mechanisms of normal and abnormal immune regulation. During the last decade this general area has been amplified considerably by studies of various immune deficiency states concerned with lack of effective humoral or

cell-mediated functions and the attempts to reconstitute defective portions of the immune response by transfer factor, other immune stimulators or thymic and bone marrow transplantation⁴⁻⁸. During the course of many ongoing studies relating to modern clinical immunology, both basic and clinical investigators have become aware of the fundamental importance of receptor or recognition molecules which allow effective communication both between cells and whole systems in the body proper. In particular it has become apparent recently that an immune response to certain key cell surface receptors may indeed be involved in potentiation or even basic production of a number of diverse disease states. Ten years ago antibodies to receptors would have seemed like a rather ethereal or even metaphysical subject; today such a concept is rapidly developing in many areas of clinical medicine with immediate practical application. Immune responses to receptors have rapidly gained clinical attention since they appear to be involved in a number of distinct entities.

Myasthenia Gravis

For a number of years, it had been suspected that myasthenia gravis was somehow involved with some sort of abnormal immune response⁹⁻¹¹. Early clinical and pathologic reports indicated lymphocytic infiltration within thymic tissues and occasionally thymomas associated with active disease¹²⁻¹⁴. In addition it was also known that corticosteroids were often beneficial during acute severe exacerbations of the disease and that under certain circumstances, thymectomy was often followed by marked clinical improvement. A number of presumed auto-antibodies including those showing anti-muscle and anti-thymic cell reactivity

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were described in patients with myasthenia gravis^{11,15}. More recently neurophysiologists provided an important breakthrough that has revolutionized current thinking about this disease. The major step forward involved isolation and biochemical characterization of highly purified preparations of acetylcholine receptors from the electric organs of electric eels^{16,17}. It was found that the electric eel *Electrophorus electricus* provided a convenient source for acetylcholine receptor purification. Advantage was taken of the fact that a cobra venom component, alpha-bungarotoxin, bound specifically to sites on acetylcholine receptors^{18,19}. Thus ground up electric organs from *electrophorous electricus* could be passed over solid phase affinity columns of alpha-bungarotoxin and a marked purification of acetylcholine receptor produced by subsequent dissociation and elution from the affinity column. It was found that whole serum or isolated serum antibody fractions from myasthenia patients bound to antigens present on acetylcholine receptors¹⁸. Ready availability of highly purified acetylcholine receptors provided a giant leap forward in our understanding of myasthenia gravis itself. It was shown that immunization of experimental animals with isolated acetylcholine receptors actually produced clinical myasthenia. Passive transfer of serum containing anti-acetylcholine receptor antibody also induced myasthenia in recipients²⁰⁻²². Finally cell mediated immunity against acetylcholine receptor was demonstrated in a substantial portion of patients with myasthenia and clinical correlations noted between both humoral and cell mediated immune response to acetylcholine receptor and the clinical activity of the disease in individual patients²³⁻²⁹. A summary of the evidence linking anti-receptor immune response and clinical manifestations of myasthenia is shown in the Table.

TABLE
Evidence for Immune Response to
Acetylcholine Receptors in Myasthenia Gravis

1. Repeated immunization of experimental animals with acetylcholine receptors induces myasthenia.
2. Defective neuromuscular transmission in myasthenia associated with antibody reacting with acetylcholine receptors at motor end plates.
3. Passive transfer of myasthenia can be induced using antiserum to acetylcholine receptors or lymph node cells from animals immunized with acetylcholine receptors.
4. Demonstration of humoral as well as cell mediated immunity to acetylcholine receptors in patients with myasthenia.

A number of important questions have been raised by the initial studies and convincing demonstrations of anti-receptor reactivity in myasthenia. Work by several groups³⁰ indicated that although humoral

antibody is present in myasthenia serum, the binding of the antibody may not be directly to the active site of the acetylcholine receptor itself. Thus the antibodies may react with chemical determinants near the active acetylcholine binding site and induce secondary changes or interruption of physiologic function through allosteric effects. Receptor molecules for acetylcholine have subsequently been extensively characterized and shown to be glycoproteins composed of several polypeptide chains³¹⁻³³. Antigens recognized by the immune response of myasthenic patients may in some instances be three dimensional and made up of conformational or shape-oriented chemical structures within the receptor molecules themselves. For these reasons extension of precise physical-chemical structure function relationships in this general area may ultimately be of considerable practical importance in understanding how antibodies to certain antigenic determinants on the acetylcholine receptor structure affect basic function. Much is still to be learned in this area. It also appears that activation of the complement sequence is necessary in several animal models before dissolution or tissue disruption of the receptor complex is produced³⁴. Also one of the most puzzling aspects of anti-receptor immune response in myasthenia gravis relates to how an immune response is induced to a natural cell surface receptor initially to produce the disease. The general features of anti-receptor immune response in myasthenia now provide an excellent guide for the study of similar mechanisms possibly involved in a number of diverse human disease states.

Diabetes Mellitus

Considerable interest has been focused recently on the significance of an early immune response to antigens present in islet cells during the initial phase of juvenile-type diabetes mellitus, particularly of the insulin-dependent type^{35,36}. Observations largely by Irvine and coworkers³⁵⁻³⁷ have suggested that the presence of these islet cell antibodies may reflect genetic predisposition as well as an acute destructive process in these tissues themselves. Previous observations of induction of diabetes mellitus in experimental animals after infection with certain encephalomyocarditis virus strains³⁸ is of great parallel interest in this regard.

A completely different type of abnormal immune response which involves generation of anti-receptor antibodies has been described in the rather rare association of acanthosis nigricans and insulin resistant diabetes mellitus. The clinical profile of these unusual

diabetic patients has now been extensively characterized by a number of research groups³⁹⁻⁴³. Extreme degrees of insulin resistance in the absence of detectable insulin antibodies are characteristic of this particular patient group. Subsequently it has been demonstrated that serum from these patients showed antibody reactivity for insulin receptors on cells. This antibody resided primarily in the IgG serum fraction and biologic activity was present in pepsin F(ab)'₂ fragments. Biologic activity for blockade of cell-surface insulin receptors could be removed using immunoabsorbents linked to anti-IgG^{44,45}. In patients with extreme insulin resistance and anti-insulin receptor antibody the patient's immune response has been directed at the very center of the problem — namely the hormone receptor structures on cells ordinarily responsive to the effect of insulin. One fascinating aspect of the clinical spectrum of many patients with anti-insulin receptor antibody is that such individuals appear to overlap with clinical features usually seen in association with systemic lupus erythematosus or mixed connective tissue disease^{39-41,43}. Elevation of gamma globulins, positive antinuclear antibody tests, and even in some subjects positive LE cell tests have been reported. The physiologic disturbance induced by anti-insulin-receptor antibodies in such patients has made the disorder clinically visible. On the other hand it seems likely that similar kinds of anti-receptor antibodies may be present in other patients where knowledge of the basic hormonal or activator controls is not as well defined as is the case with insulin or insulin-cell interactions.

It has also been demonstrated that a small group of patients with diabetes associated with the polyendocrine syndrome show antibodies reacting with distinct antigens present in pancreatic beta cells, delta cells, or alpha cells⁴⁶. Beta cells of course represent the source of insulin, but alpha cells produce glucagon and delta cells, somatostatin. As yet there is no direct evidence that such antibodies may be directed in part at receptor molecules modulating release of the two other regulatory hormones, glucagon or somatostatin. However, such demonstrations must await more precise characterization and isolation of the appropriate receptors themselves. The general field of delineation of hormone or other cell surface receptors is often vexed by artifactual and technical problems with much difficulty ruling out non-specific binding. Technical problems and the steps necessary for demonstration of receptor specificity have been reviewed by Cautrecasas⁴⁷.

Thyrotoxicosis

For a number of years thyroid disorders such as chronic or acute thyroiditis, myxedema, or thyrotoxicosis have been ascribed to disorders of immune function. Gamma globulin fractions related to long acting thyroid stimulator (LATS), recognized in association with Grave's disease especially in regard to pretibial myxedema or exophthalmos, have recently been shown to function as anti-receptor antibodies⁴⁸. In the case of LATS, the antibody activity appears to be reactive with the actual cellular receptor site for the trophic hormone TSH⁴⁹⁻⁵¹. This example of anti-receptor antibody represents an entirely different aspect of such immune function since the antibody appears to be capable of positive stimulation of the cellular machinery linked to the TSH receptor. In this circumstance the antibody appears capable of directly stimulating thyroid hormone release, and in this way substituting a false signal for the normal TSH feedback control mechanism regulating thyroid hormone release. Evidence supporting these observations has been obtained using *in vitro* studies where IgG fractions from patients with Grave's disease actually can be demonstrated to cause thyroid cell cAMP activation and adenylyl cyclase activity⁴⁹⁻⁵¹. It seems possible that similar to the situations described with respect to the acetylcholine receptor, antibodies with multiple overlapping or separate specificities for components of the TSH receptor may affect the normal control mechanisms for thyroid hormone release in different fashions. Biochemical characterizations of most of the cell surface receptors thus far studied have indicated that they appear to be complex glycoprotein structures. More specific information is now needed in this area before direct manipulation of the clinical situations involved will become practical.

Anti-Receptor Antibodies and Idiotypes

Another extension of the concept of anti-receptor antibodies can be found in past and current investigation of the feedback control of the immune response by idiotypic antibodies. Such idiotypes refer to specific antigenic determinants actually present on combining sites of other antibodies directed at a single antigenic determinant. Apparent combining site specific antibodies were first recognized in studies of antibodies to relatively homogeneous human antibodies such as IgM cold agglutinins^{52,53}. The whole concept of idiotypes has been expanded to explain possible natural immunoregulation of the immune response in what Jerne has called the network theory⁵⁴. Thus natural second line immune responses to combining

site antigens of the primary antibody or cell mediated immune response serve to modulate or dampen the primary immune response. In certain situations this anti-idiotypic response could act in a harmful way as for instance in the immune reaction to a malignant tumor. If the primary and appropriate immune response of the host to tumor were anti-tumor antibody, a secondary anti-idiotypic immune response to the combining sites of the initial anti-tumor antibody might serve to defuse or abrogate normal anti-tumor effects of the first antibody. Several clinical studies of the possible relevance of this sort of reaction have been reported^{55,56}.

The examples given here of the emerging impor-

tance of the concept of anti-receptor antibody probably only barely scratch the surface in a vast subject. Many of the clinical conditions which have been associated with demonstrable anti-receptor immune responses have already been recognized principally by their associated profound physiologic derangements such as myasthenia, insulin-resistant diabetes, thyrotoxicosis, or reversal of appropriate immunity during dissemination of malignancy. It seems likely that a number of other human disorders may eventually be linked to similar immune reactions to potent biologic receptors. Future work hopefully will serve to elucidate other disorders implemented by similar mechanisms.

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Personal Investment in the Management of Child Abuse

DANIEL P. KOHEN, M.D.*

Child abuse is a cyclical, intergenerational problem, management of which may be emotionally draining for physicians and other helping professionals. Problems in management may exist for lack of effective training and recommendations for those facing the day-to-day struggles of dealing effectively with these challenging family situations. Guidelines and suggestions for the investment of personal energy and the intimate involvement of the primary physician in management are discussed.

CHILDREN DON'T BELONG to parents. If they belong to anyone they belong to society, and society has an obligation to protect its children.

There is no escaping the reality that the abuse and neglect of children is of epidemic proportions in our country. The National Center on Child Abuse and Neglect estimates that there are over one million instances of child abuse each year¹ in the United States. In Minnesota in 1977 there were 955 substantiated cases of child abuse involving 1126 children.² These statistics do not include cases of neglect which would multiply the totals several-fold. Most agree that if these figures are inaccurate, they are low. It is acknowledged that child neglect and abuse is often missed and/or not reported. While some of the reasons for this are evident and are discussed herein, it also should be noted that when cases of child abuse are identified, review of medical and other records often indicate that abuse and/or neglect not only existed earlier, but also could have (and perhaps should have) been recognized earlier.

Child abuse and neglect is not an isolated event in our time, and it will not go away if we ignore it. The intergenerational nature of CA/N has been well described by Helfer as the "World of Abnormal Rearing" [W.A.R.].³ This never-ending, self-perpetuating cycle is one in which impulsive, immature, lonely parents provide poor models for children. They err in parenting patterns by both omission of needs of children, and commission of acts of neglect, and physical and sexual abuse. The children grow up in an abnormal world of isolation, not learning trust, and without a feeling of being wanted. Appropriately loving their parents who love them, these children believe cognitively and unconsciously

that the behavior of their parents is correct. This is manifested as they recreate their parents' behaviors by becoming abusive to their own children. The "W.A.R."³ rages on as abused/neglected children often grow up to be abusive/neglecting parents. It will clearly continue if there is not appropriate intervention.

The question should not really be *IF* one intervenes in situations of abuse/neglect, — but *HOW*. As physicians we *really* don't have a choice as to *IF* — since the law [in all 50 states] requires reporting of *suspicion* of child abuse/neglect. Moreover, irrespective of the legal implications and requirements, we have a moral obligation to identify and provide therapeutic services for abused/neglected children and their families.

In providing any measure of helping services to the abused/neglected child and family, the primary care physician must first be both able and willing to *BECOME INVOLVED*. Being involved requires a personal investment by the physician, of a time/energy commitment of proportions which some perhaps may be unwilling to make. The interjection of a personal energy and of one's therapeutic self⁴ into situations of child abuse may be very difficult. Indeed, many physicians may well prefer to avoid managing child abuse.⁵

Child Abuse is Different

Child abuse/neglect differs dramatically from most situations encountered by physicians. Feelings of disbelief, anger, repulsion, and frustration are commonly experienced at the time of initial consideration of a clinical situation which may represent abuse or neglect. Unlike most doctor-patient encounters, this sets up an at least potential, if not predictable, adversarial relationship. The suspicious physician may well be viewed in a negative, even hostile way; not only by an understandably distraught family, but also

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perhaps by colleagues or co-workers who may for various reasons disagree with or misunderstand the physician concerned about possible abuse. At the first visit, or even subsequent visits, abusive parents may not thank the physician, or behave in a particularly traditional, grateful manner. Anticipation and recognition of the complex interaction of psychological, social, and familial problems and forces responsible for this behavior will allow the physician to cope, and to respond appropriately to these stressful interactions with abusive families.

Because of inherent parenting difficulties in abusive parents,³ non-compliance with recommended medical care may also be a problem with which the physician must grapple. Recognition that lack of compliance is not a conscious nor intended personal affront will also help to continue a long-term commitment as the primary physician.

The diagnosis and management of abuse may require social and psychological skills and information, the initial acquisition, interpretation, and incorporation of which may be beyond the average clinician's expertise or comfort.⁵ An illuminating report by Copans et.al.⁶ delineated the stresses involved in the management of child abuse. Knowledge about child abuse does not always lead to effective management of families. Recognition and management of stress factors, however, allow physicians and other workers to function more realistically, more effectively, and more happily with these energy draining situations.

Copans⁶ noted that almost all identified patients' lack of appreciation was a major difficulty. While prevailing feelings of incompetence were identified, and seemed to be counterproductive, the opportunity and ability to recognize and express them allowed for continuity of effective and satisfying therapeutic relationships.

The challenge for management of child abuse is great. Like the challenge of managing a chronically ill child, these situations require a chronic investment of intimate time and energy. They require recognition and acceptance at a very personal level that *unlike* families of chronically ill children, these families may not seem to be appreciative, or may not be able to express their appreciation in a traditional way. *Anticipation* of these responses will allow the committed primary physician to plan effectively for ongoing comprehensive care. Doing so requires the crucial willingness of the physician to be able to say to himself, "I can't do it all myself" and, more importantly, to accept that it is okay not to be able to "do it all". No matter how

experienced he/she is as a listener or family therapist, the physician would be foolish and unfair to families to assume solo management of all aspects of such cases.

Physicians' Responsibilities

As physicians we must make a decision whether or not we will meet the challenge to recognize that abuse and neglect exist, and that they won't go away until the vicious cycle in families is interrupted. For those who prefer to have no ongoing involvement with abusive families, the availability of referral resources allows for diagnosis and/or further management. Making the commitment to become personally involved requires several activities in order to increase the likelihood of optimal interaction as an advocate for the abused child and his family. *In everyday activities the physician must be willing to consider the possible diagnosis of child abuse and neglect.*⁷ This willingness requires not only a knowledge of the kinds of abuse that exist, but

TABLE 1

Guidelines for Personal Investment in the Management of Child Abuse Families

1. Remember that the family is the patient and that a child suspected of having been abused/neglected is one of a family in need of help.
2. Inform the family of your belief that they all have feelings about the circumstances of concern, and that expression and discussion of those feelings is not only important but safe to do with you as their physician.
3. Be aware that families will test you and⁸ trust will not come easy. Awareness that this is not a *personal* affront, but a function of their own development will prevent development of, or allow quicker resolution of, physician anger.
4. Be honest and straightforward about your obligations in your role . . . to the law regarding reporting and sharing of information, to yourself regarding your own limitations, to them as their advocate. Be cognizant that this honesty may seem to interfere with development of trust but in the long run will foster it.
5. Involve families in the decisions that affect them. Tell them who you are notifying and involving about what, when, why, and how come.
6. Expect to have to repeat yourself. Families, like individuals, have difficulty hearing things that are painful especially when change is involved. Many seem to have a "confidence storage disease" and require repeated "transfusions" of confidence from their doctor.
7. Schedule potentially "easy" visits the same morning or afternoon as abusive families are scheduled to prevent inundating yourself with repeated difficult and stressful encounters.
8. Meet regularly with others involved with the family, your office nurses and other personnel, public health nurses, home health aids, social workers, protective service people, et.al.] to share perceptions, progress, frustrations, and plans.
9. Look inside yourself to be aware of your own internal reactions as a human being and physician to these situations . . . and "look with your ears, hear with your eyes, and more importantly, feel with your heart."⁹

also an acceptance at both a practical and feeling level that inflicted bruises are more likely and more common than are bruises from coagulation defects or platelet disorders. And, it requires a very important willingness to recognize that to consider the diagnosis *means* to offer help to a child and family. Such an approach recognizes, suspends, and then deals with the anger that comes when abuse seems likely; and such an approach understands and implements the need for a tender and loving reaching-out to families.

Beyond consideration alone, the primary physician must be willing and able to confirm [medically] a diagnosis of abuse/neglect.⁷ The importance of reporting to Child Protective Services cannot be over-emphasized. Ongoing association with multidisciplinary services coordinated through Child Protective Services offices not only facilitates provision of services to families, but also provides the physician with a forum for the sharing of opinions and feelings. This opportunity⁵ encourages the continued involvement of the physician and provides a better, more stable system of supportive therapy for families often in need of intensive and long term services.

Anticipatory Guidance

Early hospitalization of children suspected of being abused or neglected may be crucial, not only to their immediate well being, but also to the development of a coordinated care plan. To decide whether hospitalization [or placement in emergency foster care] is needed, the physician should remember that irrespective of behavior or degree of cooperation, these families are asking for, and are in need, of help. The physician **MUST** ask himself/herself simply, "Is it safe right now for this child to return home?" In most situations the data base of information needed to most appropriately answer this question is not yet known. Accordingly, the child should be admitted to a hospital or other "safe" facility for protection while investigation begins, and a coordinated management plan evolves. To err on the "conservative" side and send the child home may result in the child returning with even more severe injury.⁶ The physician, even with a helping mind-set must also know that the studied and appropriate approach will usually be greeted with hostility, and he/she must be prepared to accept that. Ideally, the physician will manage such situations in a way that conveys the message, "I know you're angry and upset now, and I accept that" while making it clear that he/she cares, and above all will not abandon them.

Prevention of Child Abuse?

The primary care physician is in an ideal position to prevent serious [further] child abuse. Like the commitment to provision of ongoing care — this requires an extra investment of energy as the physician acts as coordinator of health care for families. Families at high risk for disruption in the form of abuse and neglect may be identified by their global inability to cope, by repeated crises in their lives, by lack of nurturing physical or eye contact with their infants and children, by disparaging remarks about their children, by excessive use of physical punishment,⁶ and perhaps most commonly and importantly, by general *unrealistic expectations* about [their] children's behavior.

Following recognition of the family at risk, many things may be done to foster prevention of future episodes of abuse/neglect. Continuity of care may begin with family planning services and counselling or spacing of children. Primary pediatric care begins during early pregnancy when anticipatory guidance⁸ may be proffered for the soon-to-be addition. This is an ideal time to begin to explore parental feelings and expectations about the new baby, and to begin education centered around normal infant behaviors, issues, and feelings. The physician may foster healthy parenting behavior during pregnancy by encouraging a cooperative and sharing attitude and approach in anticipation of the normal stresses of caring for newborn infants. Encouragement of paternal as well as maternal infant bonding through early physical contact with the newborn [delivery room], and involvement of both parents in early care [bathing, feeding] are important physician activities. Once a family is home with their newborn infant the preventive services of greatest value seem to be *frequent contact* with trusted, helping individuals. Thus, while community health services in the form of Public Health Nurse visits and day care centers are clearly important, the clinician must plan for frequent and, perhaps, lengthy visits by these high risk families. Such interactions should include close attention to anticipatory guidance in nutrition, safety, common illnesses, developmental needs, discipline, and normal parental responses to infants. These lengthy and often intense physician-family encounters centered around parenting counselling may be exhaustive and seem unrewarding, especially when conducted repeatedly with high risk families. The physician should remember that these families require ongoing support, and that it is not unusual for the physician to frequently be repeating explanations on subsequent visits. While this activity

may be frustrating and depressing, it is crucial to note that these repeated transfusions of confidence and advice represent the physician's personal energy investment which *of itself* may prevent future abuse/neglect.

Conclusions

In providing preventive and therapeutic services the personal physician would do well to guide herself/himself in an anticipatory manner to prevent his own "burnout" as a therapeutic person. Since dealing with high risk families can be both time-consuming and draining, it would be appropriate to schedule such families so as to prevent days in which such families

are seen "back-to-back". Anticipation of the difficulties inherent in such schedules will prevent letting it happen. Further, the primary physician should seek the regular consultation and support of colleagues and other health workers with interest and experience in the area of child abuse and neglect. Such planned opportunities for the expression and sharing of difficult feelings will allow for appropriate coping with those feelings and prevent sustained disillusionment and despair. Continued enthusiasm and energy will then remain for the significant ongoing task of helping families and their children in a meaningful and personal way.

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Harold A. Diehl Award

The committee for the Diehl Award given annually by the Minnesota Medical Alumni Association solicits nominations for this award from the physicians of Minnesota. The award is presented to one or more physicians meeting these four major criteria:

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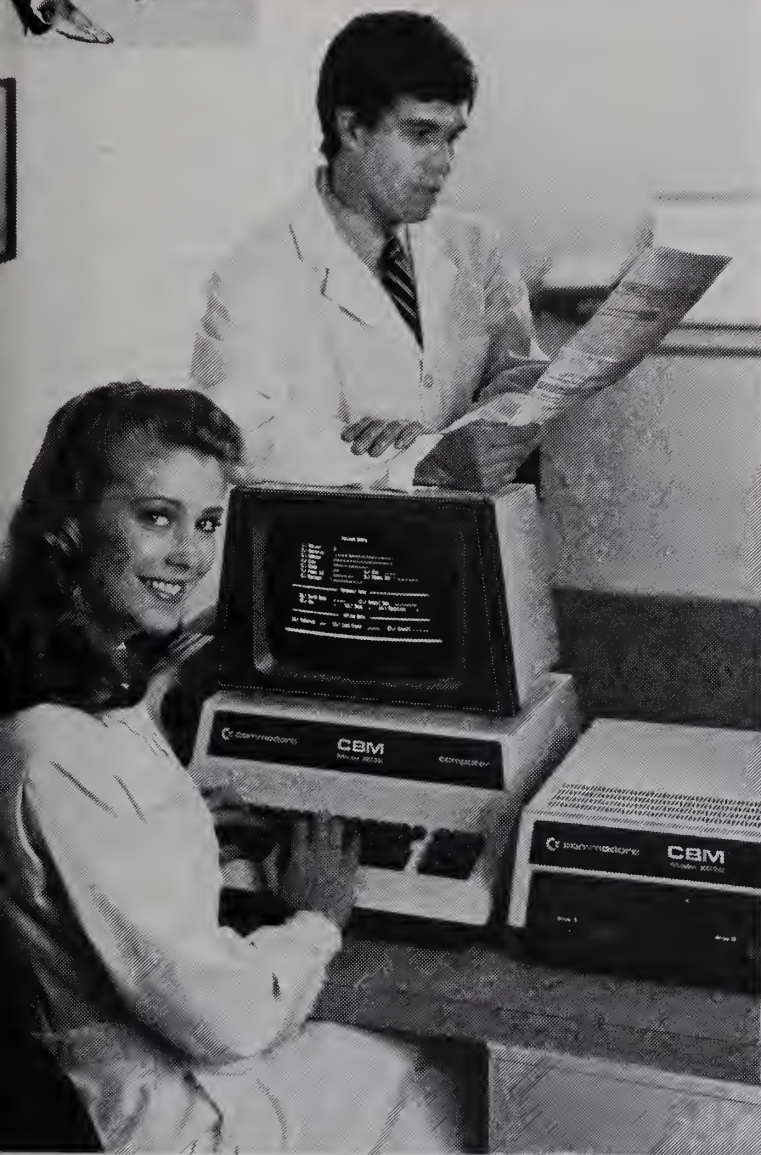
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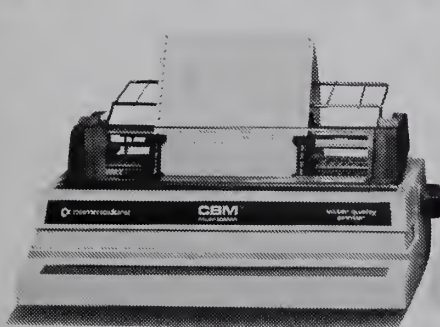
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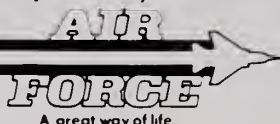
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Rheumatology Corner

Intra-Abdominal Complications of Systemic Lupus Erythematosus

ALAN J. JACOBS, M.D.* and HARVINDER S. LUTHRA, M.D.*

INTRA-ABDOMINAL SYMPTOMS occur in about half of the patients with systemic lupus erythematosus (SLE). These symptoms include nausea, vomiting, anorexia, pain, and gastrointestinal hemorrhage. Nausea, vomiting, and anorexia may reflect general disease activity, central nervous system involvement, secondary infection, or the side effects of medications the patient is taking. Acute abdominal pain has been reported in 10 to 33 percent of the patients and can be a difficult diagnostic and management problem. The causes of acute abdominal pain can be varied from benign conditions such as gastritis or esophagitis to potentially lethal vasculitis and bowel infarction. The signs and symptoms are not always reliable in determining the etiology because many of these patients are on corticosteroids.

Usually, the intra-abdominal complications of SLE occur in a patient with active disease with accompanying pleuritis, pericarditis, arthritis, nephritis, and vasculitis. Concomitant elevated erythrocyte sedimentation rate, anti-n-DNA antibodies, and low total hemolytic complement are observed. When these are absent, pain due to other causes should be considered first unless the patient is on high dose corticosteroids.

Serositis

Serous peritonitis can occur in 60% of the patients. Usually these patients have diffuse — nonlocalizing tenderness, abdominal distension and decreased bowel sounds. Rarely, clinical ascites may be observed. This can usually be managed with an increase in the dose of administered corticosteroids.

Intestinal Infarction and Perforation

Inflammation of the intestinal arteries can be a potentially fatal complication and because these patients are on high doses of corticosteroids for the underlying systemic disease, it may be overlooked. The pathogenesis involves mesenteric insufficiency which can lead to intestinal ischemia, mucosal damage with erosions and ulcerations, hemorrhage, ileus, frank bowel infarction, and perforation. This is usually

due to a small artery vasculitis but occasionally necrotizing vasculitis of the medium-sized vessels can be seen. Clinically, the signs and symptoms will vary depending on the degree of involvement. Often a dull pain of insidious onset may occur, sometimes in association with the tapering of corticosteroids. Usually there is diffuse tenderness. More localized symptoms of pain, tenderness, and rebound phenomenon generally indicate bowel infarction. Hematochezia may occur from mucosal ischemia or frank bowel infarction.

Laboratory investigations are not specific and reflect activity of the systemic disease process. Roentgenograms are helpful and may show pseudo-obstruction, ileus, edema of the folds, thumb printing, free air, and rarely pneumocystosis intestinalis. However, these studies may be normal and doing barium studies in a patient with an acute abdomen can be hazardous and not recommended. The value of arteriography is unclear. Although arteritis may be recognizable, in many instances at surgery, the blood vessels may look normal clinically and histologically, in face of frank ischemia or infarction.

When bowel infarction or perforation is suspected, early operative intervention is warranted because the prognosis otherwise is very poor. These patients should be treated by stopping oral feeding, close observation in association with a surgeon, intravenous fluids, and high dose corticosteroids. One should watch for development of localized tenderness, rebound phenomenon, free air under the diaphragm, and hematochezia since these may herald bowel infarction and/or perforation and require immediate surgical intervention.

Pancreatitis

Pancreatitis in SLE is usually due to associated vasculitis. Although drugs e.g. corticosteroids are

TABLE

Intra-abdominal complications in SLE

Nausea
Vomiting
Anorexia
Serous Peritonitis
Intestinal ischemia and infarction
Pancreatitis

*Mayo Clinic, Rochester, Minnesota

thought to also be responsible, the evidence for this is poor. Furthermore, there can be occasional painless elevation of serum amylase which may be due to vasculitis and subclinical pancreatitis or the presence of macroamylasemia. Usually the clinical presentation tends to be similar to pancreatitis due to other causes. In a small autopsy study, examination of the pancreas revealed vasculitis and platelet thrombi as etiologic factors.

Conclusions

Acute abdominal pain in SLE poses a significant diagnostic problem because of the multiple etiologies possible. Of major concern is the possibility of mesenteric vasculitis because bowel infarction or perforation carry a grim prognosis and warrant proper medical and early surgical intervention.

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Hospice Care

Care of the Dying

Issues in Pain Management

Part II†

TRUE RYNDES R.N., B.A., B.Sc.* and ROBERT S. BROWN, M.D.†

IN THE PAST DECADE research literature has documented innovative approaches to pain management of the dying patient. Practitioners in the field of terminal care no longer perceive a patient's options to be either full consciousness of agony with episodes of respite, or drug-induced delirium. This article intends to review general principles of chronic pain management encountered at Hospice St. Paul. With rare exception, these principles easily apply to patients served at home as well as within the medical center.

Skilled Prescription

An eighty-one-year-old female, suffering from carcinoma of the breast, received 80 milligrams of oral morphine solution (hereafter referred to as OMS) every three hours and was able to converse lucidly with friends as she worked on memorial gifts for her grandchildren days before her death. A 79-year-old gentleman with carcinoma of the prostate was obtunded by 2.5 milligrams of OMS given every four hours. Individual differences are considerable. Consequently, before applying these general principles, a thorough pain assessment, as outlined in the last article, should be considered and evaluation goals established.‡

Collaborative goal setting is imperative if maximum consistency of effect is to be realized. Too often, dying patients are erratically or inappropriately treated with analgesic principles better suited to the postoperative patient. However, not all dying patients experience pain that requires routinely prescribed analgesia. Any analgesic regimen should be initiated with the understanding of all parties concerned, particularly the third-party reporters, the care-givers. Type of medication, dose, route of administration, and frequency require individually tailored prescription and education to achieve minimally compromised consciousness with optimal relief from distress.

Loss of psychic control is frequently expressed as one of the chief fears of the dying patient, along with

fear of pain. Multiple factors may contribute to a dying patient's altered state of consciousness: serum toxicity, impaired renal and hepatic function, hypoxia, poor nutrition, anxiety, altered sleep patterns, tumor metabolites, hypercalcemia, sensory or perceptual deprivation, and system depersonalization. It is therefore desirable to maintain the patient as chemically "clean" as possible by thorough periodic evaluation of the need for previously prescribed medications. Chances of drug interactions in the geriatric population-at-risk are high and may be heightened further when central nervous system depressants are added.

Somatic Pain Medications

Mild, moderate, and severe somatic pains have been effectively reduced by salicylates, codeine, and morphine sulfate, respectively. Hydromorphone (Dilaudid) and Oxymorphone (Numorphan), semisynthetic analogues of morphine, are used less commonly than OMS. They serve the patient who develops nausea secondary to the OMS, particularly when small-dose prophylactic antiemetic therapy is ineffective or contraindicated. Percodan, one-to-two tablets, every four-to-six hours, is effective on moderate to severe pain not likely to be progressive. It can be put in solution by the pharmacist, if pill-taking is a mechanical problem. Methadone, which enjoys a successful reputation in pain relief for the well-nourished ambulatory oncology patient, may precipitate a toxic state when given every eight hours over a period of time to the patient in end-stage disease. Jerkiness, "behavior salads," lassitude, and the sensation of falling while lying still may indicate an accumulation of this lipophilic drug. A change in dose or frequency is generally less preferable than a change to OMS. Not only is OMS metabolized more quickly, it has a higher dose-potential, useful for the patient experiencing rapidly escalating pain and rapidly diminishing time to "finish business."

Oral Morphine Solution (OMS)

Oral morphine solution is known by a variety of names: Hospice Mix, Hospice Cocktail, and —

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‡Part I, December, 1981 issue, page 774.

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inappropriately — Brompton's Cocktail. The latter, which contained morphine solution, alcohol, cocaine, chloroform water, and frequently a phenothiazine, has not offered increased analgesia when compared to the streamlined OMS in use throughout palliative care services around the country. The OMS recipe in use at Hospice St. Paul is:

40 cc cherry syrup (or other flavoring)

10 cc vodka

MS at desired concentration

qs H₂O to make 120 cc

The standard mixture contains 1 mg/cc fluid. More concentrated solutions can be prepared when fluid volume is a problem for the dysphagic patient on high doses of morphine. It is recommended that "Hospice Mix" be phased out as a label. Non-Hospice patients have refused to take a medication which carried, for them, strongly negative associations.

Patients with severe pain are generally titrated onto OMS in five milligram increments, beginning with five milligrams every four hours. If the nursing staff is experienced with the arsenal of analgesics and is trained to discriminate levels of consciousness, a milligram and/or frequency range may be provided. Dose alterations are commonly made after a twenty-four hour period of evaluation, unless pain continues dramatically unabated or the patient is over-sedated. The average dose of our patient population is twenty milligrams, administered every four hours, although 30-40 milligram doses are not uncommon, and several patients have been given 70-80 milligrams with the same frequency. The highest dose known to us was given to a patient at St. Joseph's Hospice in England: 250 milligrams every four hours.

When the patient becomes dysphagic, intramuscularly or rectally administered morphine maintains the desired analgesic state. The parenteral dose rate is generally regarded as 40 percent that of the oral dose, although this does not hold true for patients on low-dose regimens (2.5 to 5 mg.), who often need the same amount administered intramuscularly as orally prescribed. Those patients receiving oral doses in excess of 25 to 30 mg. are given 10 mg. MS, intramuscularly, and a frequency need is monitored before routine administration is performed.

If dysphagia is extreme and associated with imminent death, it should be kept in mind that analgesic needs may be reduced.

Suppositories

The use of narcotic suppositories now outweighs the use of intramuscular narcotics, both on our inpatient

and home care services. In some cases, the availability of rectal narcotics has enabled a patient's continued stay at home when there proved to be high family resistance to injecting the patient. Both Dilaudid and Numorphan are available in suppository form. MS suppositories can be compounded in a hospital pharmacy, with wide dose options. Response to the suppositories is quite variable, due to variability of absorption. The commercially available suppositories have been given quartered, halved, and whole, every 3 to 6 hours, and are effective for patients receiving 20 mg. or less of the OMS. Patients on higher oral doses may need a morphine suppository compounded. Our experience indicates that the milligram dose rate of the MS suppository is generally higher than the oral rate, though our sample continues to be too small to offer any more than the caution of individual response.

Several patients who, for mechanical reasons, were intolerant of orally administered narcotics, were treated successfully for several weeks with suppositories only. They experienced consistent relief from pain, providing the nursing staff was attentive to routine cleansing of the bowel. Two patients received simultaneous oral and rectal morphine with good effect, once significant increases in the orally administered morphine did not follow with significant increases in pain relief.

Nausea

Regular dosing of OMS may result in nausea. This is not a contraindication for usage. Small amounts of phenothiazine (Compazine, 5 mg.), added to each or alternate doses of OMS help to control the nausea. Giving the antiemetic one-half hour before the dose of OMS is also effective, or Compazine suppositories may be used twice-a-day to every-six-hours. Staff and family need to be aware of the potential for extrapyramidal effects.

Bone Pain

Osseous metastasis is known to produce osteolytic agents. One of these, prostaglandin E₂, is thought to sensitize free nerve endings. Our experience with aspirin (or the liquid choline salicylate, Arthropan), in doses of ten grains every four hours, is similar to the reports of others in the field regarding its efficacy in relief from bone pain. We have witnessed relief using such a regimen when increases in morphine were ineffective in controlling the pain. Aspirin, as other nonsteroidal anti-inflammatory drugs (NSAID), are inhibitors of prostaglandin synthetase. Acetaminiphen is not effective in inhibiting the synthetase, so aspirin

intolerance may necessitate utilizing another NSAID such as Indocin.

Evaluation

Once the pain cycle is broken and memory of the pain becomes less immediate, it may be possible to reduce the routine dose amount or decrease an every-four-hour frequency to every six hours. As other distressing issues in the patient's life arise or resolve, it is not unusual to see a change in the patient's perception of pain. Consequently, for the patient in pain simultaneously experiencing the crisis of ter-

minating relationships, a daily evaluation is required.

As noted before changes in consciousness may result from a number of factors. Families will need to know whether or not medications are implicated in a sudden change of consciousness, in order to make an appropriate decision to continue to modify appropriate medication regimens. Frequent contact by a visit or phone call communicates that one is available and committed to the patient's welfare to the time of death.

Patients and families experience a great sense of relief when they know that they will have their pain controlled and will not be isolated or abandoned.

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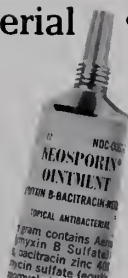
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INDICATIONS: *Therapeutically* (as an adjunct to systemic therapy when indicated), for bacterial infections, primary or secondary, due to susceptible organisms, as in: • infected skin grafts, surgical incisions, otitis externa • primary pyodermas (impetigo, eczema, sycosis vulgaris, paronychia) • secondarily infected dermatoses (eczema, herpes, seborrheic dermatitis) • traumatic lesions, inflamed or suppurating as a result of bacterial infection. *Prophylactically*, the ointment may be used to prevent bacterial contamination in burns, skin grafts, incisions, and other clean lesions. For abrasions, minor cuts and wounds accidentally incurred, its use may prevent the development of infection and promote wound healing.

CONTRAINDICATIONS: Not for use in the eyes or in the external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

WARNING: Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neo-



mycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

PRECAUTIONS: As with other antibacterial preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

ADVERSE REACTIONS: Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



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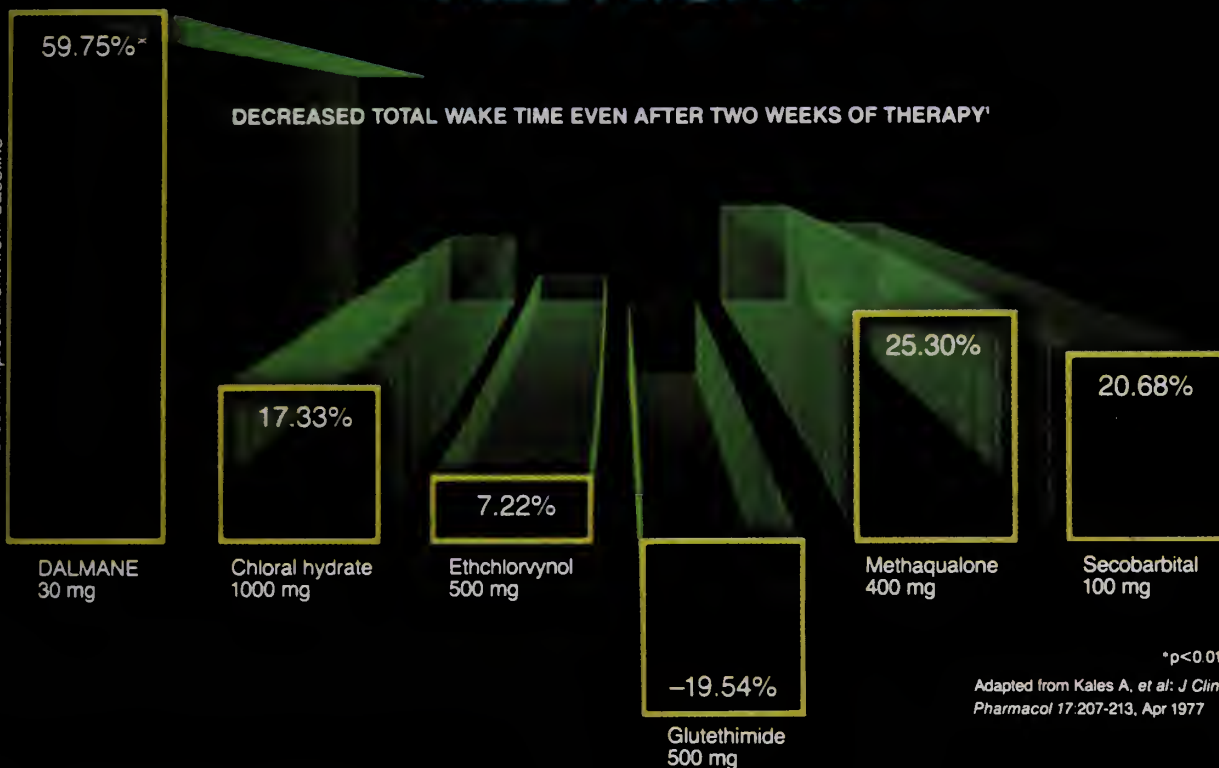


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provide the optimum environment for the onset of natural sleep. If hypnotic therapy is required, it should be given for the shortest time at the lowest effective dose to achieve the desired goal.

Consider other medications the patient may be taking (including alcoholic beverages) and be aware of possible drug interactions. Please note that patients should be treated for underlying physical or psychological factors before therapy with a sleep medication is undertaken.

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THE STANDARD OF HYPNOTIC EFFICACY
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Tricyclic antidepressants

- which are *not* sleep specific,⁹ yet are sometimes used in nondepressed patients for sleep
- which can cause transient insomnia in the elderly¹⁰
- which can require careful monitoring in cardiovascular patients¹⁰
- which have strong anticholinergic effects¹⁰

Antihistamines

- which are *not* reliable sleep-inducing agents¹¹
- which may produce stimulation instead¹¹
- which have anticholinergic effects¹¹

Major tranquilizers

- whose side effects may be troublesome for nonpsychotic patients¹²
- where tolerance for sedation appears rapidly¹²

Dalmane does not cause significant worsening of sleep beyond baseline levels upon discontinuation.⁴

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect.

Adults: 30 mg usual dosage; 15 mg may suffice in some patients. **Elderly or debilitated patients:** 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



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Letters to the Editor

Dear Editor:

In the January 1982 Letters to the Editor section of MINNESOTA MEDICINE, Dr. Lee Beecher includes a chart listing mental health and chemical dependency benefits of Twin Cities HMOs. While the chart acknowledges under Group Health Plan, Inc., that "group benefits may vary", it lists none of our group benefits but only the individual contract benefit which is not only the least generous of the numerous contracts offered by Group Health Plan but actually pertains to less than 5% of our total membership.

Group benefits do indeed vary at Group Health Plan and so widely as to make an inclusion of just one of our benefits relatively uninformative. However, since 95% of our membership have group contracts rather than individual contracts and thus have no copayment at all for in-patient mental health care (as opposed to the 25% listed) and a 73 day in-patient chemical dependency benefit (rather than the 36 days listed), I feel it necessary to clarify the record.

R. Jerome Rauch, M.D.
Chairman, Mental Health Department
Group Health Plan, Inc.

*Page 41.

Dear Editors:

Physicians are inundated with magazines, periodicals and newspapers of various value and worth. I often wonder what these cost the sponsoring drug companies and ultimately our patients. But one journal I single out from the pile is Minnesota Medicine. The cover is always beautiful and interesting. The editorial page is well written and timely. The articles are a good mix of scientific, social economic and historical features. In my estimation Minnesota Medicine is a credit to medicine in Minnesota.

John R. Holten, M.D.
Moorhead, Minnesota

Dear Editor:

On again seeing the lovely picture called "Wild Lilacs" by Dr. John E. Loustein on the cover of MINNESOTA MEDICINE Vol. 64, No. 7, July 1981, I can no longer restrain myself from asking if this is meant to be a joke or is an example of artistic (or poetic) liberty.

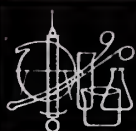
The flower on the cover is not a "Wild Lilac". It is a wild aster, a member of the composite or Daisy family. "A Field Guide to Wildflowers" by Peterson and McKenny describes this family of wild asters, the most common being the New England aster native to central and eastern United States.

Alfred G. Sherman, M.D.
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Drug Profiles

Drug Action in Elderly Patients

A Series of Profiles

JAMES PATTEE, M.D.;* THOMAS KELLENBERGER, PHARM.D.† and BARTON GALLE, Ph.D.‡

THE SERIES of drug profiles beginning in this issue of MINNESOTA MEDICINE grew out of a conference on drugs and the elderly presented by the Department of Family Practice and Community Medicine, Continuing Medical Education, and Continuing Education in Pharmacy, University of Minnesota.

That conference focused on four disorders common to the elderly: thought disorders, sleep problems, osteoarthritis, and congestive heart failure. Using data from the Minnesota Medicaid population compiled by the Drug Utilization Review Program in the Depart-

ment of Public Welfare, program planners isolated the three or four medications generally used to treat these disorders in Minnesota. These are the medications profiled in this series.

Each profile has been developed by clinical pharmacists and practicing physicians. Each follows the same format, describing the pharmacokinetic properties of the drug before highlighting important clinical considerations. Because these profiles are meant to be clinically useful, they do not include all information available about each drug. Rather, they represent a concise review of the aspects of each drug most relevant to the treatment of older patients. If they are torn out, collected, and used for office reference, then they have served their purpose.

*Director, Program in Gerontology, Department of Family Practice and Community Medicine, Medical School, University of Minnesota, Minneapolis.

†Coordinator, Drug Utilization Review Project, Department of Public Welfare, State of Minnesota.

‡Resident, College of Pharmacy, University of Minnesota, Minneapolis.

Digoxin

BART GALLE, Ph.D.*

Digoxin is a digitalis glycoside used primarily for the treatment of congestive heart failure. It works by increasing the contractile force of the failing heart and by increasing cardiac output. Based on a November, 1980, study of Minnesota Medicaid patients, digoxin is the most frequently prescribed cardiac drug in Minnesota.

Absorption

Oral bioavailability ranges between 60 and 75%, with 65% used most often in dosing calculations. Both IM and oral solutions have a bioavailability of 80%. Since IV administration results in 100% bioavailability, caution must be exercised when switching routes of administration and from the use of tablet to solution formulations.

Distribution

The apparent volume of distribution is Liters/kg. based on lean body weight, not total body weight. Digoxin is concentrated in myocardial and skeletal muscle. Protein binding to albumin is less than 30%. It

usually takes about 4 hours after an oral dose for the drug to be fully distributed within the cardiac muscle.

Metabolism

20 to 35% of the drug is metabolized in the liver.

Excretion

65 to 80% of the drug is excreted unchanged in the urine, and adjustments in dosage must be made with any change in renal function. Thyroid function is inversely related to digoxin's clearance, with hyperthyroidism increasing the clearance and hypothyroidism slowing the clearance of the drug. This is due to increases and decreases in cardiac output.

Half-life

Normal plasma half-life is 1.6 days. With decreased renal function this may be prolonged to as long as five days. Because of the drug's long half-life, accumulation may progress slowly over a period of a week or more before toxicities are seen. When adjusting dosages more frequent assessments of the patient's status should be conducted over the first few weeks.

*Assistant Director, Continuing Education in Pharmacy, University of Minnesota, Minneapolis.

Therapeutic Concentrations

The range varies between 0.5 and 2.0 ng/ml for most therapeutic levels used in the treatment of congestive heart failure. The ratio of myocardial to plasma digoxin concentrations are not constant and toxicity may be seen at the low end of this spectrum. Some patients may need concentrations at the upper end in order to control symptoms. For this reason individualization is necessary in all dosage considerations. Ranges of concentrations are virtually nonexistent in the use of digoxin for atrial dysrhythmias. Again individualization according to patient's status and EKG are always necessary.

Digoxin blood levels are more important in monitoring future dosage adjustment than they are in achieving a certain concentration for initial therapy.

Interactions

Absorption may be decreased with concurrent use of antacids and antidiarrheals. Electrolyte status is important in avoiding toxicity. Concurrent drug therapy which may alter electrolytes, especially potassium, magnesium and calcium should be considered. Probably the most controversial interaction is the use of digoxin and quinidine. Some patients may get a two-fold increase in the serum digoxin level when quinidine is added to their regimen. The exact mechanism of this interaction is not firmly established although many explanations have been given. Many different approaches have been used in adjusting doses when both drugs are used together. The best approach at this time is to monitor each patient separately and make dosage adjustments accordingly. Some authors feel that although the plasma levels are rising, the myocardial concentration of digoxin isn't changing, or at least not increasing at a rate equal to that of the plasma. (Some references of these different views are included at the end) It should also be mentioned that at this time no interaction has been reported with the use of digitoxin and quinidine concurrently. Some physicians have replaced digoxin with digitoxin when quinidine is to be added. It must be remembered that digitoxin has different kinetic parameters, especially with regard to absorption and metabolism and these must be considered when switching drugs.

References will be found on page 188.

Dosage Considerations

Kinetic dosing of digoxin has been extensively reviewed, and most general reference texts on drug therapy include models for dosing digoxin. Some general considerations with regard to elderly patients are:

1. Decreased muscle mass and renal function require individual dosage requirements for all patients. Bioavailability must be considered when switching dosage forms and routes of administration. Diuretic therapy may cause changes in blood levels of digoxin because of changes in blood volume and electrolyte status.
2. Loading doses are no longer employed by many physicians when initiating digoxin therapy. This is due to the many newer inotropic agents available with quicker onsets of action when needed for rapid effect. When no loading dose is given, plasma levels of digoxin should not be obtained for at least one week.

Clinical Comments

Not every patient on digoxin must be supplemented with potassium, and sometimes an adequate diet is all that is necessary. Electrolyte status should be considered though, and individual recommendations made.

When potassium is to be supplemented, especially if the patient is on a diuretic, a potassium chloride supplement should be used. This will supply the needed chloride for maximum potassium retention and avoid the conversion to bicarbonate which the gluconate, citrate and other potassium salts undergo in the body.

Because of digoxin's narrow therapeutic index, toxicity should always be kept in mind. Vague G.I. symptoms, visual disturbances, muscle weakness and other signs of toxicity are sometimes not reported by elderly patients because they feel that these symptoms are just a result of aging.

Plasma concentration should be obtained after the patient has reached steady-state. After steady-state has been reached time should be allowed for equilibration of digoxin within the myocardium before later levels are drawn. This is usually 4 hours after an IV dose and six hours after an oral dose is given.

Minnesota Medical Association

1982 MMA ANNUAL MEETING

May 26-28, 1982
(Wednesday-Friday)
Radisson South Hotel, Bloomington

Highlights of the Month

Each month this page will highlight a different aspect of the 1982 Scientific Program and one or more of the special events planned in conjunction with the Annual Meeting.

Scientific Program: Thursday and Friday, May 27-28

Physicians interested in **sports medicine** will have plenty of opportunity to gain a perspective on the clinical aspects of exercise and athletics. A plenary session on Friday morning, "**Fitness Through Endurance Athletics**," will cover such topics as conditioning and the pitfalls of jogging and other endurance exercise. One of the Friday afternoon breakout sessions, "**The Physician's Role in Amateur Athletics**," will cover a variety of concerns the primary care physician has with patients who are participating in school and other amateur sports. The physician's role in weight determination for wrestlers, menstrual irregularities and exercise, and office application of splints and padding are some of the topics to be covered. Both these sessions are sponsored by the Minnesota State Orthopedic Society and will be presented by a multispecialty faculty.

Two of Thursday afternoon's breakout sessions will also relate to sports medicine. A **hands-on workshop on the application of casts and splints**, also sponsored by the Minnesota State Orthopedic Society, will be conducted at Fairview Southdale Hospital. "**Youth Sports — A Medical Perspective**" has been planned by the Minnesota Chapter of the American Academy of Pediatrics. Pre-participation evaluation, the nutritional aspects of athletics, pediatric injuries and guidance of parents will be covered.

Special Events: Golf and Tennis Tournaments, Wednesday, May 26

Golf and tennis enthusiasts can plan on another round of friendly competition to start the Annual Meeting. **Olympic Hills Golf Club**, one of the top five courses in the state, has been reserved by Joseph M. Tambornino, M.D., who will direct the golf tournament. Mark your office schedules now for an **early morning tee-off** (last tee-off to be scheduled at 10:00 a.m.).

John J. Stoltenberg, M.D., will reserve either **Midwest Tennis Center or Normandale Tennis Club** for the use of MMA tournament players. Women's events will begin at 9:00 a.m. with mixed doubles and men's events to follow.

Both tournament sites are very close to the Radisson South. Entry forms will be included in the Annual Meeting registration brochure. **Spouses are welcome** to play in either tournament.

Environmental Health CME Program, 11:00 a.m.-1:00 p.m. Friday, May 28

A special CME program on environmental health will be jointly sponsored by the MMA Resource Group on Environmental and Industrial Health and the Freshwater Society. Approval has been requested for **two Category 1 CME credits**. No registration fee will be charged. A description of the presentations and registration material will be included in the Annual Meeting registration brochure.

REGISTRATION BROCHURES ARE BEING MAILED THIS MONTH.

For further information on the Annual Meeting, contact:

Department of CME & Program Services
Suite 400, 2221 University Avenue SE
Minneapolis, Minnesota 55414
612/378-1875

Minnesota Medical Association

from

Division of Socio-Economic Affairs

Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Charles W. Wiger, Director, Department of Legislative Affairs

Department of Medical Services and Research

What is Going on at DPW?

Last year the cost of Minnesota's Medicaid program — Medical Assistance (MA) — soared beyond the planned Department of Public Welfare's (DPW) budget by \$240 million. Part of the reason for that deficit has to do with the liberal nature of Minnesota's benefit packages for welfare recipients. Another reason is the rapid increase in the costs of health care services and the increasing growth of an elderly population that receives institutional services that amount to 70% of the State's Medicaid budget.

To solve DPW's budget situation, Governor Quie convened a special Task Force on Health Care to find ways of reducing the State's welfare budget. That report was released in November, 1981. Looking at the recommendations in that report with non-skeptical eyes, a liberal estimate of savings to be realized amounted to only \$43.5 million.

Because it is unconstitutional (according to the Minnesota Constitution) to allow deficit spending, officials at DPW are feeling pressures from many sources to substantially alter the Medical Assistance (M.A.) program.

Very recently, the MMA staff attended a hearing on a bill to make it mandatory for all M.A. recipients residing in a county where two or more prepaid health care plans exist to obtain their health care from one of those facilities. The House Committee has laid the bill over until next session.

Other changes being considered include the Department's proposed legislation to implement a case management system for Medical Assistance recipients. The project would be initiated on a pilot basis, if passed. At the time of this writing, the proposed legislation (amending Minn. Stat. 256B.01) had passed through the Revisor's office, but the Governor's office had not arranged its Senate and House authors. This bill must be placed in the hopper by February 22, 1982 or it will not be considered by the Legislature this session.

Yet another option presented to a number of legislators and Department of Public Welfare officials within the last few days is an offer by Electronic Data System (EDS), a Dallas, Texas corporation serving the health care industry as claims processor, to contract for the processing of the Medical Assistance claims.

Because the Legislators are striving to adjourn by March 12 and because of the tax bill that was passed last special session, it is very possible that the House and Senate health and welfare committees will not pass legislation on any of the programs and proposals noted above.

On Friday, February 5, 1982 the members of the MMA Committee on Medical Service were appraised of the possible program changes that officials at DPW are considering. The Committee voted to form a subcommittee on Medicaid to serve the MMA as an information gathering body and as a special liaison to the administrators and officials at the Minnesota Department of Public Welfare. All MMA members are urged to contact the MMA staff if they have concerns about Minnesota's Medical Assistance program, particularly in light of the many changes that may be ahead.

Department of Legislative Affairs

Legislature Explores Medical Records Issues

As legislative deadlines loomed, legislators debated the right of patients to own their medical record. Also considered were the elimination of the physician's authority to withhold records and the need for

hospitals to hold records for extended time periods.

Current Minnesota law allows patients access to the information in the medical record. While not specifically designated, the intent of the 1977 law giving access indicated the ownership of the record remained with the physician creating the record. Legislators attempted to analogize the medical record to property entrusted to an attorney. Authors claimed that patients have an absolute right to know, and second guess, the physician's judgment as recorded in the record.

The present law, a good one, allows the physician to provide information to a patient in the form of a written summary of the record, photocopies of the contents of the record, or allow the patient to review the record originals. When photocopying is done, a reasonable charge may be required of the patient. Records must be sent to other health providers when a written demand is made by the patient.

In the infrequent event a physician determines that the information in the record would be damaging to the patient's health resulting in physical or mental harm, the physician may refuse to release the requested information. In these cases the record may be released to another person who may then share the information with the patient. Challenge to his section came from mental health advocates claiming no one deserves to be protected from knowledge, only the consequences of that knowledge.

Medical records librarians asked to be allowed to destroy hospital records after ten years (longer for children). Proposed as a cost-cutting measure, the librarians pointed out the costs of microfilming and the current inaccessibility of old records, these often stored in boxes, warehouse fashion. MMA argued the value to genetic and other medical research of these records. Pediatricians and obstetricians find the birth records of mothers valuable in determining the care for young children.

Chiropractic Bills Heard

Legislators faced the decision to determine the need of general assistance medical care patients to receive chiropractic care. GAMC medical benefits were substantially reduced in the 1981 session. Health providers denied the ability to be paid for care are now seeking to restore their payment authority. Likewise, chiropractors petitioned the legislature to have residents of the Minnesota Veterans Home receive spinal care, free of charge. The bill would require the state to hire or pay for chiropractic services.

Department of Health Planning

Physicians Testify at Legislature on Health Planning Issues

The Minnesota House of Representatives is receiving testimony on several legislative proposals that would repeal or phase out Certificate of Need legislation, and promote price competition through the publication of price information by hospitals — some calling for mandatory reporting, and others favoring a voluntary approach. One of the proposals now under consideration would eliminate all health systems agencies in the state and transfer their functions to the state level.

A. Stuart Hanson, M.D. of Minneapolis and Vernon L. Sommerdorf, M.D. of St. Paul have addressed the Health Subcommittee of the House to provide the MMA viewpoint on these issues.

In testimony represented on February 11, 1982, Dr. Hanson noted that the MMA has always supported responsible, locally-directed health planning. Stating that health planning existed in Minnesota before federal involvement, Dr. Hanson noted "I perceive that it will exist after federal funds have been withdrawn." Dr. Hanson defined planning as a basic activity, which means simply "thinking before doing." He cited the major accomplishments of health planning as the education of the public, the building of consensus, and the identification of issues. He indicated that health planning, at both state and regional levels, has a valuable role to play in the future.

With the move towards price-competition or a marketplace approach to the delivery of health care services, Dr. Hanson stated that consumers and providers must have more knowledge about the cost of care. Dr. Hanson cited the position of the MMA Board of Trustees on physician release of price information, adopted on February 6, 1982:

"TO BOLSTER THE CONTINUED DEVELOPMENT OF A MARKET MECHANISM IN WHICH THE PRICE OF SERVICES IS A RELEVANT FACTOR, THE MINNESOTA MEDICAL

ASSOCIATION SUPPORTS THE VOLUNTARY RELEASE OF PRICES BY PROVIDERS. THE MMA HAS FREQUENTLY ENCOURAGED CONSUMERS TO DISCUSS FEES FOR SERVICES WITH THEIR PHYSICIANS. IN FACT, PHYSICIANS GENERALLY RELEASE FEE INFORMATION FOR SPECIFIC SERVICES UPON REQUEST. THE MMA ENCOURAGES ITS MEMBERS TO MAKE FEE INFORMATION AVAILABLE IN THEIR OFFICE AND OVER THE TELEPHONE. WE URGE OUR MEMBERS TO POST A STATEMENT OF THE AVAILABILITY OF THE FEES FOR THE MOST FREQUENTLY PERFORMED PROCEDURES IN THEIR OFFICES OR RECEPTION AREA."

Dr. Hanson continued, "We strongly support the voluntary release of prices by all providers. However, we also realize that under the current cost-based reimbursement mechanisms, consumers do not have strong incentives to be price sensitive in the care they purchase." Consumer selection of health plans may be the level at which consumers become more price sensitive.

Dr. Vernon Sommerdorf provided the MMA perspective on Certificate of Need. He stated that in 1971 when he was a legislator, he co-sponsored the original Certificate of Need legislation. At the time, Dr. Sommerdorf noted that Certificate of Need had a strong intuitive appeal. Through CON, ideally, only enough services would be provided so that costly duplication would be avoided. Unfortunately, that has not proven to be the case. The MMA has concluded that CON should be repealed because: (1) Certificate of Need is antithetical to price competition in health care, and (2) Certificate of Need has not proven its effectiveness.

In a competitive health care system, Dr. Sommerdorf indicated that consumers must have choices to make if they are to become cost-sensitive partners in the health care system. He stated that Certificate of Need tends to limit choices by reducing excess capacity. "Without excess capacity, there is no room for the growth of cost-effective programs and providers, or for the demise of cost-ineffective programs and providers." Citing the difficulty new programs such as outpatient surgical centers experience in obtaining CON approval, Dr. Sommerdorf noted "Health planning agencies . . . perceive that these alternative programs add "excess capacity" to the system; but fail to consider the immediate cost to the patient and long term cost savings to the overall system."

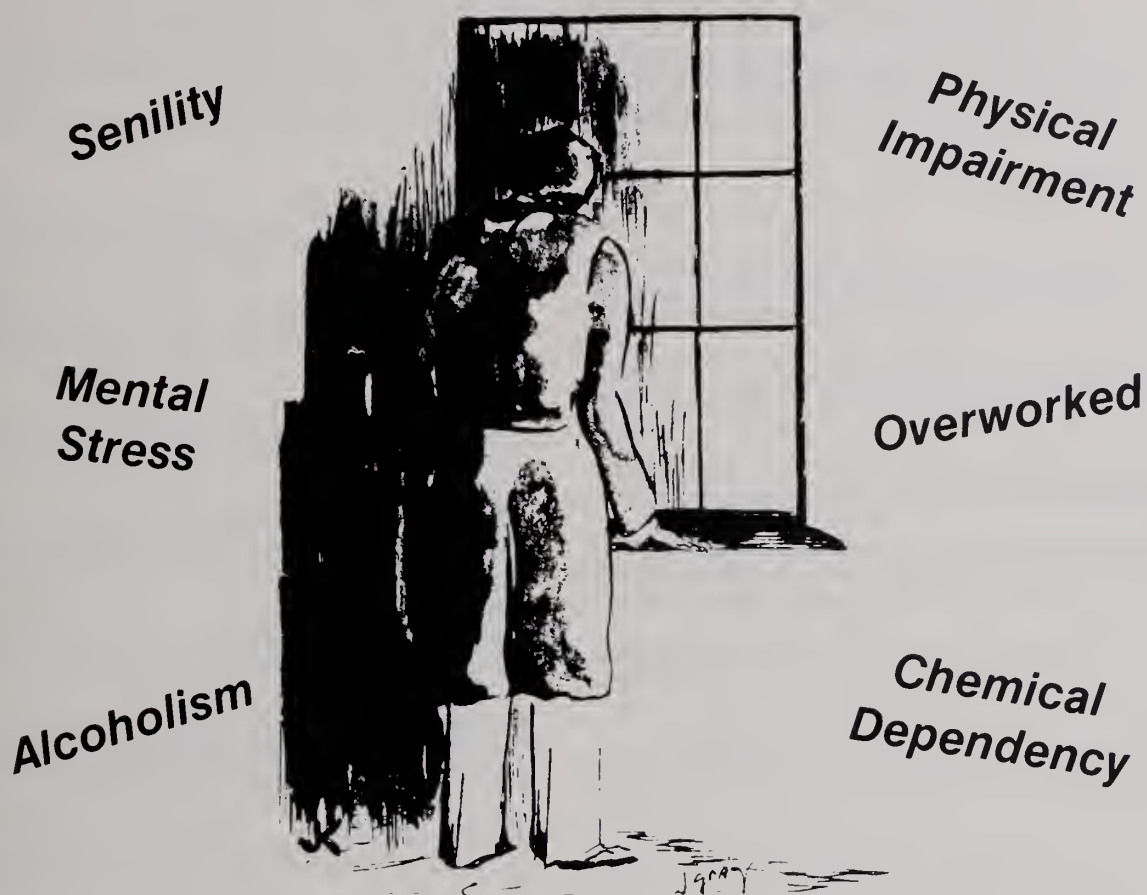
Dr. Sommerdorf summarized the many ways in which the health care system has changed since the passage of Certificate of Need legislation in Minnesota in 1971. The burden of proof, he noted, lies with the advocates of Certificate of Need. "After over 10 years in Minnesota and elsewhere in the nation, the program has not established a strong case for its effectiveness."

MMA staff and spokespersons will continue to follow these and other related proposals at the legislature. For a copy of the complete text of the presentations cited here, contact the Department of Health Planning.



Physicians involved in health planning discussions at the Minnesota House of Representatives: Left to right — Vernon L. Sommerdorf, M.D., Representative Robert W. Reif, M.D., and A. Stuart Hanson, M.D. (Photo by Roger K. Johnson.)

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Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

March, 1982

13-20 Mercy-Unity Winter Medical-Dental Seminar; Mercy Medical Center; Keystone, Colorado; CONTACT Joseph Cardamone, M.D., 4050 Coon Rapids Blvd., Coon Rapids, MN 55433, 612/572-4567.

15 & 17 Basic Cardiac Life Support; North Memorial Medical Center; NMMC, Mpls.; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

17 Rheumatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17 Myocardial Infarction — A Multi-disciplinary Approach; Riverview Hospital; Riverview Hospital, Crookston; CONTACT R. de Noord, M.D., Northwestern Clinic, Crookston, MN 56716, 218/281-3184.

19 Symposium on Ethics; North Memorial Medical Center; NMMC; CONTACT Ivan Brodsky, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5661.

19-20 Pulmonary-Allergy Postgraduate Education Course; St. Louis Park Medical Center; Registry Hotel, Bloomington; CONTACT Elaine Anderson, SLPAC, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

26 Recurrent Lung Disease in Childhood; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

April, 1982

2 Psychiatry for Primary Care Physicians; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3 Minnesota Psychiatric Society; Sofitel, Mpls.; CONTACT Mrs. Pat Rowe, 1770 Colvin Avenue, St. Paul, MN 55116, 612/698-1971.

14-16 Spring Refresher; Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington; CONTACT Chari Konerza, Suite 426, 2221 Univ. Ave. S.E., Mpls., MN 55414, 612/632-9559.

16-17 5th Annual Update in Practical Cardiology; Abbott Northwestern Hospital; CONTACT Robert Blomberg, M.D., 2727 Chicago Ave., Mpls., MN 55407, 612/874-4211.

17 Minnesota Society of Anesthesiologists; Hilton Inn, Mpls.; CONTACT David Byer, M.D., 200 1st St. S.W., Rochester, MN 55905.

17 Annual Pediatric Challenges for Primary Care Physicians; Minneapolis Children's Health Center; Children's Health Center; CONTACT Daniel P. Kohen, M.D., 2525 Chicago Ave. S., Mpls., MN 55404, 612/874-6238.

19-20 Surgical Correction in Aphakia; U of M Medical School; Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

20 Medical Chest; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

22-23 Pediatric Days; Mayo Clinic/Mayo Foundation; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

23 Problems in Office Orthopedics; Duluth Clinic; St. Mary's Hospital; Duluth; CONTACT J.G. Brueggemann, M.D., 400 E. 3rd St., Duluth, MN 55805, 218/722-8364.

23 Minnesota Surgical Society; Mayo Clinic, 200 1st St. S.W. Rochester, MN 55905; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-May 1 Food Allergies; U of M Medical School; U of M Mpls; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

29-30 Advanced Cardiac Life Support; Mercy Medical Center; MMC; CONTACT Gene Arel, Mercy Medical Center, 612/427-2200 Ext 2365.

30-May 1 Ophthalmic Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-May 1 Dermatology Reviews; Mayo Foundation Mayo Clinic; Mayo Clinic; CONTACT Mayo Clinic, 200 1st St. S.E., Rochester, MN 55905, 507/284-2085.

May, 1982

1 Advances in the Therapy of Diabetes Mellitus; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave. Mpls., MN 55404, 612/871-3700 ext. 1117.

3-5 International Conference on Tissue Specific Antigens; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-7 Practice of Internal Medicine; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

5-6 Human Aging V; U of M Medical School; U of M Mpls. CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

CME IN MINNESOTA

May 1982 (Continued)

5 Spring Symposium; Rice Memorial Hospital, Willmar; Rice Memorial Hospital; CONTACT Steven Honebrink, M.D., 301 Becker Ave., S.W., Willmar, MN 56201, 612/235-4543.

7 Medical Directors Spring Meeting; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-14 Family Practice Review; U of M Medical School; Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

13-15 12th Annual Meeting; Great Plains Organization for Perinatal Health Care; Radisson South Hotel, Mpls.; CONTACT Kimberly Bardis, Regional Coordinator, GPO, 2nd Floor, 3036 University Ave. S.E., Mpls., MN 55414, 612/373-5718.

19 Cardiology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

19-21 Current Concepts in Radiation Therapy; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 State-of-the-Art in Clinical Anesthesiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

24-26 Topics and Advances in Pediatrics; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

26-28 Biotechnology Symposium; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-28 MMA SCIENTIFIC PROGRAM; Radisson South Hotel, Mpls.; CONTACT Teresa L. Rogstad, 2221 University Ave. S.E., Suite 400, Mpls., MN 55414, 612/378-1875.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

2-4 Coronary Heart Disease Workshop; U of M Medical School; Spring Hill Center, Wayzata; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9-11 Musculoskeletal Tumors; U of M Medical School; Sheraton-Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

11-12 Clinical Hypnosis; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

14-16 Advances in Vascular Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Psychiatry; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

29-30 Disabled Adolescent; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

July, 1982

9-10 Malnutrition: The Clinician's Role (Women in Medicine Conference); U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21 Orthopedics; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

August, 1982

17 Ob/Gyn; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

25 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

Minnesota Medical Association
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(Continued on page 206)

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(continued from page 205)

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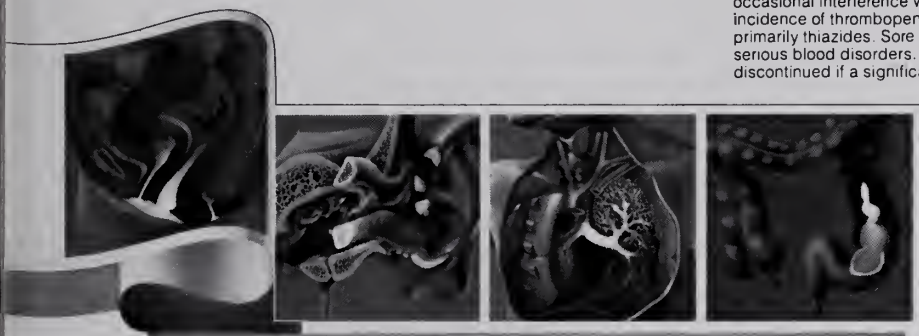
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Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. Limited clinical information presently available on effectiveness of treatment of otitis media with Bactrim when infection is due to ampicillin-resistant *Haemophilus influenzae*. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

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For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

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multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. **Gastrointestinal reactions:** Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea and pancreatitis. **CNS reactions:** Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness.

Miscellaneous reactions: Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

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Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

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1. Rubin RH, Swartz MN: *N Engl J Med* 303 426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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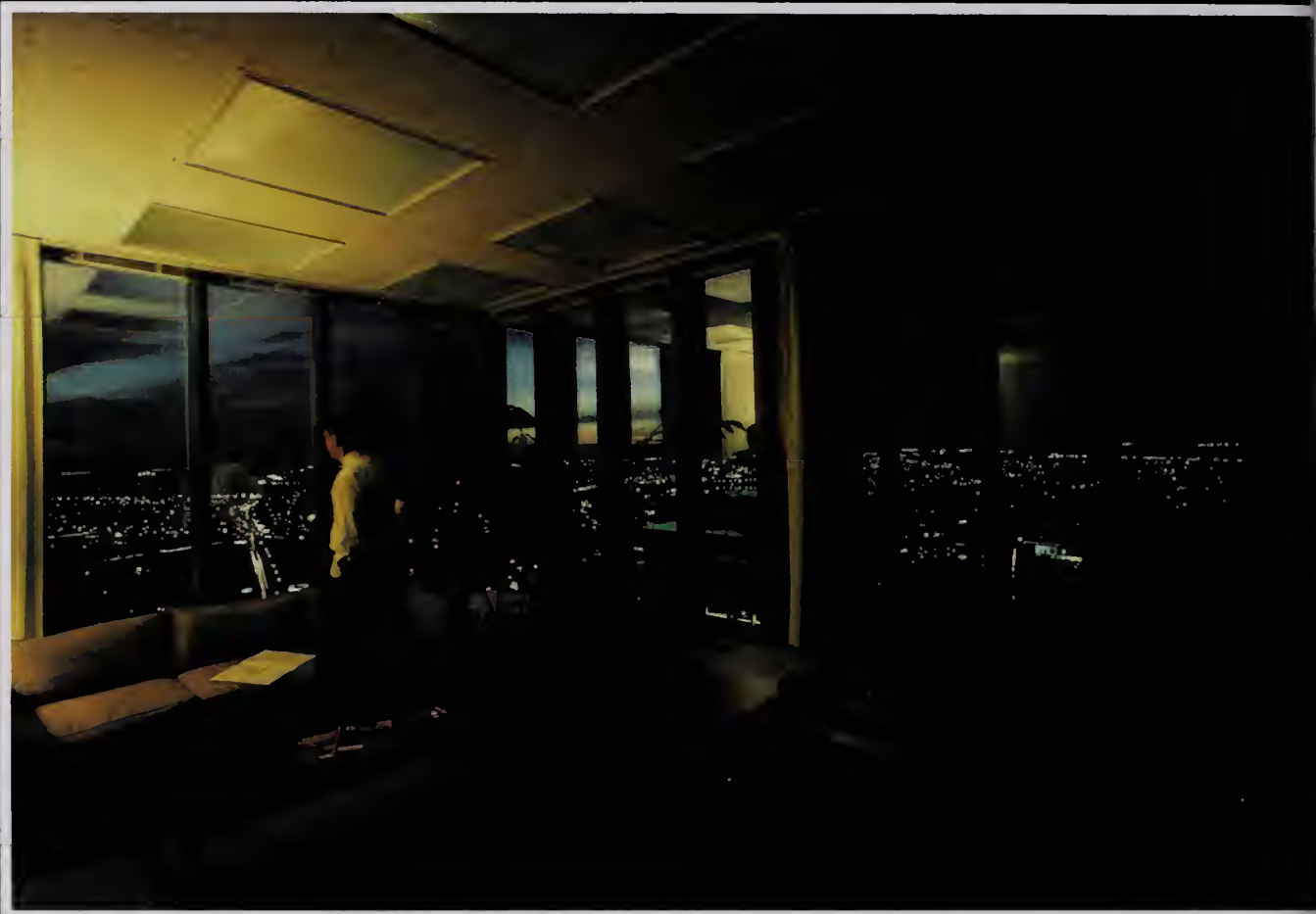
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Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses.) Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs.

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke.

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido.

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias at the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue.

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling.

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. I.V. administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

How Supplied: White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500; Tel-E-Dose® packages of 100, available in trays at 4 reverse-numbered boxes of 25, and in boxes containing 10 strips at 10; Prescription Paks at 50.

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President's Letter



Are We Ready for Marketing?

Marketing is a foreign term most physicians reserve for traveling salesmen, the shampoo ad on TV, or that mutual fund that our broker is constantly badgering us to buy. Most obvious in the word itself is the connotation of stock market, food market, in other words, a place to buy a product. As physicians, we prefer not to think of ourselves in those business terms. We offer caring, quality medical treatment, not a product.

Other aspects of marketing, which come to mind, are competition, price, advertising, and customer. These terms are basic to anyone in the commercial world but using them may be uncomfortable or distasteful to the physician. As uncomfortable or distasteful as marketing may be to many of us, we may be unwise if we fail to seriously examine marketing as a useful discipline in the delivery of medical care.

I am certain that every hospital administrator either understands marketing principles or is now taking a crash course to do so. The reason can be supplied in one word — competition. In 1982, competition is not limited to hospitals, for we physicians are feeling the pressure of competition.

In fact, competition has popularly replaced health planning as “the answer” to the problem of rising health care costs. The Citizens League report advocates allowing “marketplace forces” to control costs; our Metropolitan Health Board is basing its work on competition; and government is proceeding to deregulate so that the marketplace can function unfettered by government regulation.

What is marketing? Marketing focuses on understanding the preferences and perceptions of users in order to develop strategies that maximize return through user satisfaction. If you substitute “patient” for “user”, you quickly see that physicians have been practicing marketing techniques for a long time. The aspect of marketing that will require more thought and sophistication on our part is in the development of strategies.

As the economy tightens, as government funding is reduced, and as other actors in the health care system pressure for expanded roles, the physicians will need to become sophisticated in determining patient needs and in attracting new patients. The techniques of marketing may be what many physicians should consider.

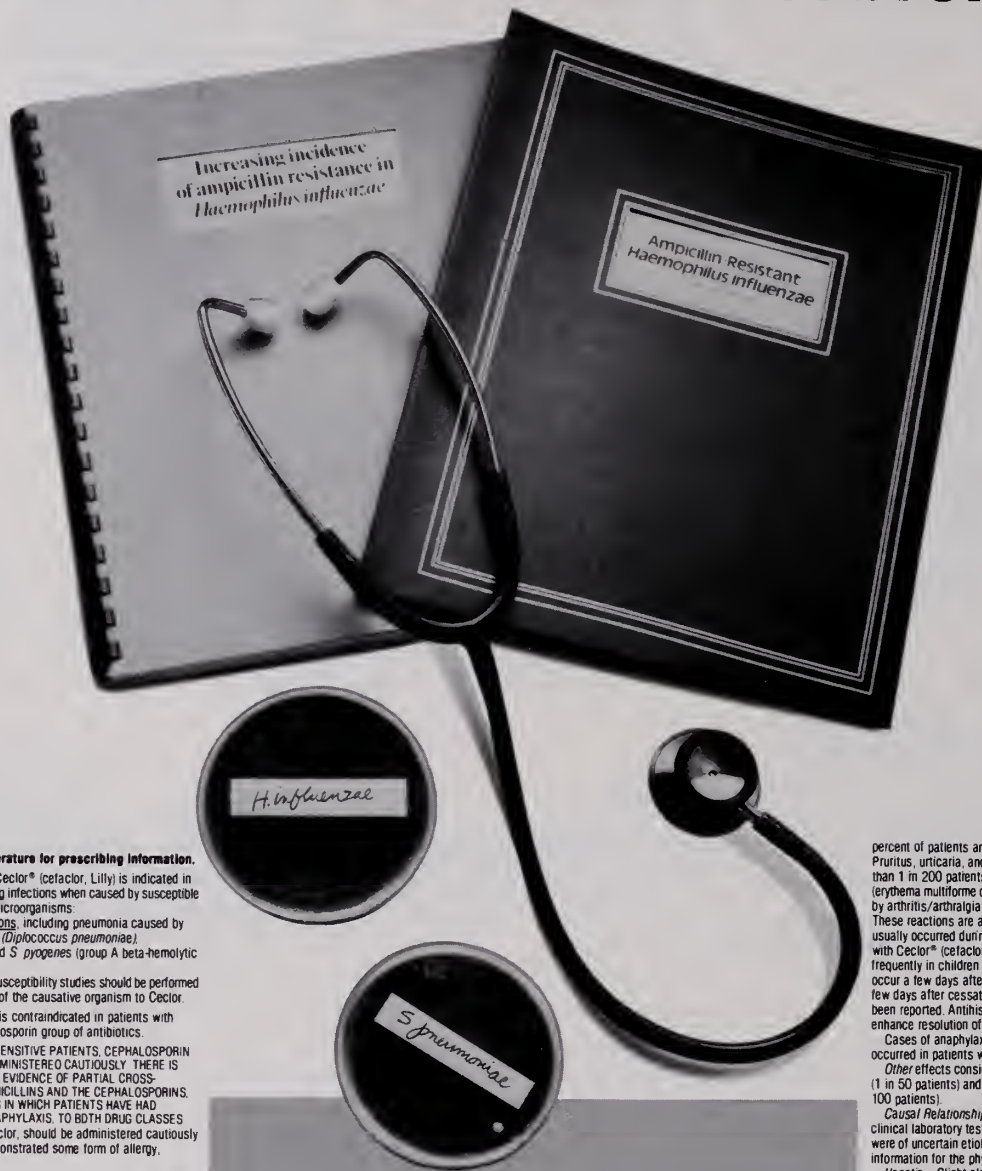
Those strategies may possibly include: patient newsletters; patient information pamphlets; calling the patient to ask how he is feeling a few days after an appointment; rescheduling office hours to meet patient needs; not charging a fee for the first visit to the office; tasteful and well planned advertising.

We are truly living in an era of rapid change. So rapid in fact that at times we find ourselves doubtful about the future. I am confident we can meet any competitive challenge the future holds providing we determine accurately the needs of our patients and plan accordingly, and then implement programs to meet those needs. Marketing will not be a “foreign” concept in the future. It will become an integral component of our practices.

A handwritten signature in cursive script that reads "Charles J. McCarthy".

Charles J. McCarthy, M.D.
President
Minnesota Medical Association

An added complication... in the treatment of bacterial bronchitis*



Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Cefclor® (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

Contraindication: Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Precautions: If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy—Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy—Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefclor.

Hypersensitivity reactions have been reported in about 1.5

Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefclor.¹⁻⁶

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.⁷

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percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefclor® (cefclor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). (100281R)

*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc. Carolina, Puerto Rico 00630

Lyme Disease and Erythema Chronicum Migrans in Minnesota

DAVID N. WILLIAMS, M.D., Ch.B., MRCP (UK)*; J. CORWIN VANCE, M.D.†; CRAIG HEDBERG, B.S.‡; CHRISTOPHER FOLEY, M.D.#and MICHAEL OSTERHOLM, Ph.D., M.P.H.§

This is the first report of Lyme disease in Minnesota. We describe nine cases in patients aged two to 65 years, all occurring in the summer of 1980. This illness is caused by an unrecognized infectious agent transmitted by the tick *Ixodes dammini*. Typically there is a distinctive rash, erythema chronicum migrans (ECM) which is pathognomonic, followed in some patients by other manifestations including arthritis, neurologic and cardiac abnormalities. The history, epidemiology, and clinical features are described. This disease entity may become more frequent in Minnesota since the tick vector is already established here. Early recognition and institution of antibiotic therapy may be important, both in ameliorating the skin manifestations and preventing serious sequelae.

LYME DISEASE, first reported in 1976,¹ is most likely the result of an agent transmitted by a minute (1 to 2 mm.) tick *Ixodes dammini*. Most cases have been described from the northeast coast of the United States and, specifically, from the state of Connecticut. The principal and most characteristic manifestation is a skin lesion, erythema chronicum migrans (ECM). Some patients, especially those with B cell alloantigen DRw2, develop neurologic, joint and cardiac sequelae that are thought to be immunologically mediated.

In this paper, we describe nine patients with Lyme disease, eight of whom were residents of the state of Minnesota, who had onset of illness during the summer of 1980. All had the characteristic skin lesion and three representative cases are described in detail. Historical, epidemiologic, and clinical aspects are reviewed.

Historical Background

ECM was first described in Scandinavia in 1910 and was subsequently reported in a number of European countries. ECM was first described in the United States in 1970 by Scrimanti and was identified in north central Wisconsin.¹

In 1975 a woman from the town of Old Lyme, Connecticut notified the Connecticut State Department of Health Services of an unusually high incidence

in the community of an illness diagnosed as juvenile rheumatoid arthritis.

This prompted a major evaluation by a team of physicians from the Yale University School of Medicine, and this group, headed by Dr. Allen C. Steere, has been responsible for most of the information and the furtherance of knowledge relating to this disease as it occurs in the United States.

There are unexplained differences in the clinical sequelae following ECM in Europe and in the United States. In Europe, neurologic sequelae usually taking the form of aseptic meningitis have been described, but joint and cardiac involvement have not been reported.

Epidemiology

A report³ in 1979 indicated three different geographic foci in this country. Most cases were reported from the northeastern coast, especially from Connecticut. The contiguous townships of East Haddam, Old Lyme and Lyme have been the focus of intense surveillance, and the cumulative frequency of this disease is about 2% of all residents.

Of the 512 cases reported by 1979,³ all but nine (five in Wisconsin, three in California and one in Oregon) had occurred in the northeastern United States (Connecticut, Rhode Island, Massachusetts and New York).

The distribution of cases correlates with that of the presumed vector, *Ixodes dammini* in the northeast and in central Wisconsin, and *Ixodes pacificus* in the West. The tick has been identified in at least six cases from the Northeast as the nymphal form of *Ixodes dammini*.

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A history of tick bite can be elicited in about 20% of cases. It is not surprising that most individuals fail to report a tick bite as the implicated tick is minute (1 to 2 mm) and thus can easily be over-looked.

Clinical Manifestations

The major and diagnostic manifestation of this disease is ECM. The diagnosis in its absence can be made on the basis of geographic location or travel together with the other clinical manifestations. The prevalence of sequelae varies and probably depends on a number of genetic and immunologic factors. However, following ECM approximately 40 to 80% of patients will have joint manifestations, 14% will have neurologic sequelae⁴ and 4 to 8% will have cardiac manifestations.⁵ Serious manifestations occur more frequently in males and those with B cell alloantigen DRw2.⁶ The age range of reported cases varies from 2 to 71 years, but there may be an increased number of young adult males represented, perhaps due to increased tick exposure.

Dermatologic Manifestations

The slowly advancing erythematous annular eruption of ECM is pathognomonic but may only occur in about 75% of cases of Lyme Disease. The initial lesion is an erythematous macule or papule which appears after a latent period of days to months at the site of a tick bite. The papule expands peripherally with central clearing, resulting in annular lesions which are erythematous only, lacking induration or scaling. They reach a median diameter of 16 cm, with a range of 6 to 52 cm., and usually fade spontaneously after a period of about three weeks. In some cases, the rings merge and rarely they fail to demonstrate central clearing. The eruption is generally asymptomatic, but may cause mild itching, burning, or prickling. Usually there are multiple lesions, with up to 20 secondary lesions appearing a few days following the primary one. Secondary lesions differ from primary lesions in that they lack the central papule. The primary lesions commonly occur on the thigh, buttock, and/or near the axilla — sites which are consistent with a crawling arthropod vector. The secondary lesions often occur in the same general anatomic area as the primary lesion. No mucosal lesions have been reported. They do not all occur simultaneously, and thus it is possible to have some resolving while others are continuing to expand. The lesions heal completely leaving no residual changes. Recurrences are sometimes seen, but they are usually evanescent. The skin lesions may be associated

with a variety of systemic symptoms and signs, most characteristically chills, fever, headaches, neck stiffness, malaise and tiredness. Sometimes these symptoms may precede the appearance of the skin lesions. Most symptoms subside in a few days, but the malaise may persist for many weeks. More rarely, other physical signs, including generalized lymphadenopathy, splenomegaly and periorbital edema may occur.

The skin biopsy in ECM is nonspecific, revealing a heavy mononuclear cell infiltrate around the blood vessels and appendages, together with edema in the papillary dermis.

Joint Manifestations

Joint manifestations are the commonest sequelae of ECM occurring in 40 to 80% of patients.^{1,6} Typically, joint symptoms occur four weeks after the onset of the skin lesions, and therefore there is usually no evidence of any skin problem by the time the arthritis or arthralgia makes its appearance. In some patients there may be a very long interval between the appearance of the skin involvement and the arthritis. This time period can extend to as long as a year or two.

Joint involvement occurs within a few weeks of the skin lesion, is short lived, and has a tendency to recur. This pattern is also true for neurologic and cardiac manifestations. Moreover, as with the other manifestations, there is usually evidence of some immunologic change occurring concurrently with elevated sedimentation rate, depressed C3 and C4 components of complement, elevated IgM, and the presence of cryoprecipitates.

Usually the arthritis is of sudden onset, is asymmetric, and is mono or oligoarticular. The knee is the commonest joint involved, and in contrast with many other arthritides, involvement of the hands and feet is unusual. The temporomandibular joint is sometimes involved. The arthritis typically lasts seven to 10 days, and recurs up to three or more times, with a four-week remission in between.

During the acute phase, the joints are swollen, hot and painful to move but not red. There are no characteristic synovial fluid findings. There is usually an elevated white blood count (20,000 cells per cubic mm. or more), with elevation of the protein, but negative rheumatoid factor. C3, C4, and CH50 are typically slightly reduced. In about 10% of the patients, usually males with B cell alloantigen DRw2, the arthritis becomes chronic. In such patients, there is a great deal of synovial proliferation. Synovial biopsy reveals hypertrophy, vascular proliferation, and mononuclear infiltration.

Neurologic Manifestations

Neurologic manifestations have been described following ECM in 14 percent of patients.⁴ The neurologic manifestation that occurs most typically is a form of "aseptic meningitis" with complaints of headache, neck stiffness and fever. This may occur while the ECM is still active. The typical history is one of short but recurrent attacks of aseptic meningitis with periods of remission (of a few weeks) in between. In some patients, these attacks may recur over a period of several months. CSF examination usually shows relatively few white cells (less than 100 cells per cubic mm., with a marked predominance of lymphocytes), with elevated protein, and often a slightly depressed glucose.

Other manifestations include encephalitis, cranial neuritis (most commonly a facial palsy), and a radicular neuritis. The shoulder girdle is the most typical site of radicular involvement. Rarer manifestations include chorea, cerebellar ataxia, mononeuritis multiplex and myelitis. As indicated elsewhere, evidence of immunologic phenomena can be found, with the presence of cryoglobulins during attacks, which often disappear in remission. Males are affected more commonly than females.

Cardiac Manifestations

Cardiac manifestations, which occur following ECM in approximately four to eight percent of patients,⁵ occur typically in young men, some three weeks after the appearance of the skin rash. There is often confusion with acute rheumatic fever. Fluctuating A-V block is the usual electrocardiographic manifestation, and frequently complete heart block may occur. Other manifestations include a diffuse myopericarditis and left ventricular dysfunction. Valvular involvement has not been described. These cardiac manifestations are usually brief, lasting three days to six weeks and frequently occur in the setting of other manifestations such as arthritis or neurologic involvement.

Case Reports

Case 1

A 57-year-old white woman presented to the Dermatology Clinic of the Hennepin County Medical Center in early August, 1980, with an asymptomatic skin rash and joint pains. One month previously, she had been vacationing in her cabin in Kanabec County near Lake Mille Lac. She recalled being bothered by many insects, and noted an unusual bite on her left hip after brushing off a number of insects. The bite was an asymptomatic erythematous papule, measuring 1 cm. in diameter with a central blue punctum. Over the next several days, the lesion became "saucer-sized" and demonstrated central clearing, although the central papule persisted. She then began to experience malaise, fatigue, headache, and nausea. The skin lesions

rapidly enlarged to "dinnerplate-sized."

In late July, she began to complain of fever, chills, sweats, myalgias and joint pains. The left knee and hip were initially involved, followed by discomfort in the right elbow. In early August, additional skin lesions appeared over the trunk.

On examination she was found to have a number of large erythematous annular lesions over her trunk and proximal ex-



Fig. 1 — Annular lesion of erythema chronicum migrans on the shoulder of patient described in case #1.

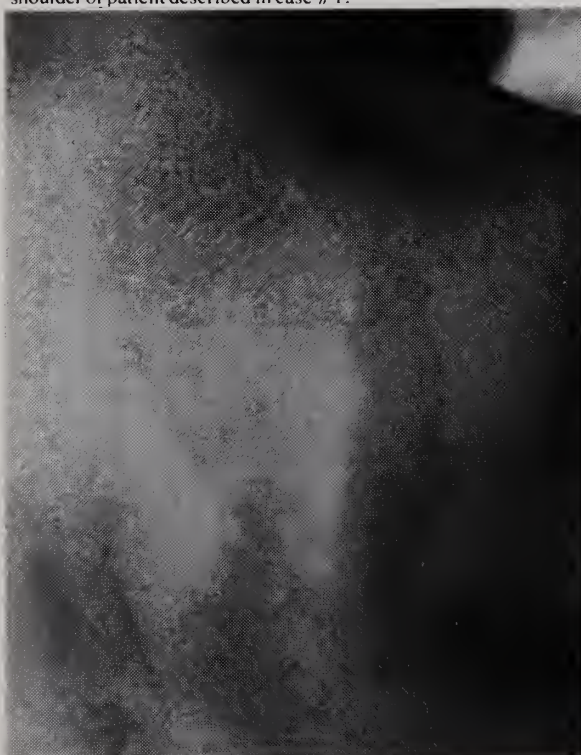


Fig. 2 — A lesion on the back of patient #1.

tremities, immediately recognized as ECM (Figures 1 and 2). Several joints were tender, but none showed arthritis or other change. No neurologic findings were detected and an EKG was normal. She was begun on oral penicillin 250 mg. q.i.d. and aspirin. Within three days, the joint symptoms had markedly improved, and after 10 days, the skin eruption disappeared. Evanescent mild joint symptoms and malaise have occurred intermittently but have not required treatment.

Case 2

In late May, 1980, a 49-year-old white female was picnicking in the northern suburbs of St. Paul. The day after her picnic she noticed a bloody insect bite on her right shoulder. Ten days later she experienced the abrupt onset of a severe frontal headache associated with a reddened area on her abdomen and thighs, and a sensation of fever. Three days later, 13 days after the picnic, she experienced widespread arthralgia associated with spread of the rash to the arms, back and legs. When seen at St. Joseph's Hospital, she complained of pain in her right elbow and both shoulders.

Physical examination revealed areas of erythema on the anterior and posterior thighs, back, abdomen, left upper arm (Figure 3) and upper chest. The areas on the thigh and back had an annular appearance, and central pallor could be seen in the area on her back. Joint examination revealed tenderness over the right shoulder and both elbows. There was some slight induration around the elbow, without effusion or evidence of synovitis. Other joints were nontender and normal.

Laboratory evaluation revealed normal or negative hemoglobin, white cell count, sedimentation rate, ASO titer, FANA, rheumatoid factor, immunoglobulin G and A, and EKG. Immunoglobulin M was elevated at 292 mg. % (normal 8 to 250 mg. %). The patient was HLA DRw2 positive.

The patient was treated with aspirin, with relief of her symptoms. During the second week of August, 1980, she experienced a three to four day episode of right facial nerve palsy which spontaneously resolved. The patient's headaches and joint symptoms remained quiescent until the middle of September, 1980, when she experienced increased pain in her shoulders and right elbow. Repeat quantitative immunoglobulins in the middle of July, 1980, again revealed elevation of the IgM at 343 mg. %. Her sedimentation rate remained normal at around 13 mm/hr. (Westergren method) throughout her illness. She has continued with episodic anti-inflammatory medication.

Case 3

A 29-year-old man was referred to the St. Louis Park Medical Center on July 21, 1980, for evaluation of possible acute rheumatic fever. He was referred because of a history of a skin rash and the presence of a prolonged PR interval on the electrocardiogram. Later detailed questioning revealed that he had developed a red macular skin lesion over the inner aspect of the right thigh which increased to involve the whole thigh over a period of several days. The lesion healed in the center and was associated with two other similar lesions in the same general anatomic area. Although there was no history of tick bite, there had been a history of travel to the Mille Lac area, as well as a history of picnicking and other outdoor activities. The skin manifestations were not associated with acute systemic symptoms, and the rash persisted for about two weeks. As it cleared, he began to complain of a joint pain and later developed arthritis, which ultimately involved five joints. The arthritis resolved but did recur briefly four weeks later. The joints involved included the shoulder, elbow, wrist, and temporomandibular joints. He had a history of malaise and weakness that persisted.

He was seen by his physician in the second week of his illness and

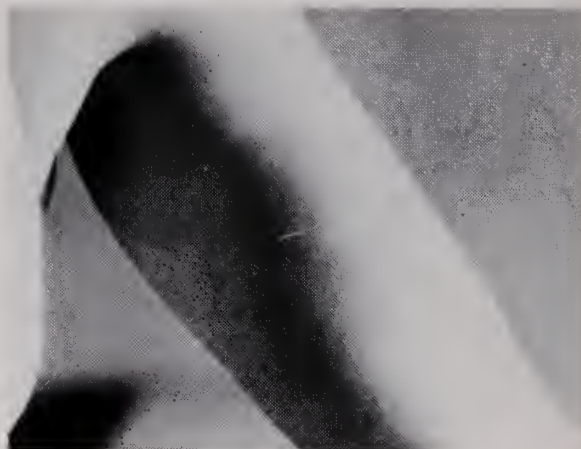


Fig. 3 — An early lesion of ECM on the medial upper arm of the patient described in case #2.

at that time had a negative throat culture. ASO titer was normal. The sedimentation rate was 55mm/hr, with a normal CBC. EKG showed first degree A-V block with a PR interval which varied from 0.28 to 0.4 seconds. Collagen vascular screen, complement (C3, C4, CH50) and cryoglobulins were all normal or negative. He was treated with aspirin and penicillin and improved without any sequelae.

Other Cases in Minnesota

Other cases have occurred in this area. Two Minnesota residents were summertime neighbors on the shores of Balsam Lake in Western Wisconsin. Both developed extensive skin lesions with a flu-like illness in early July, 1980. Both responded well to a course of tetracycline. In mid-July, a two-year-old boy from Mora, Minnesota, developed a skin lesion which involved the whole of his back. There was a history of tick bites, and the skin lesion was associated with a history of fever, irritability, vague ill health and joint pains. The skin lesion responded promptly to oral tetracycline.

A 54-year-old man from McGregor, Minnesota, developed a skin lesion on his right leg, accompanied by fever, chills and malaise. Three weeks later, he developed soreness of all his joints with a persistent inflammation of the right knee.

Two additional cases include a 7-year-old female from St. Paul whose travel history is unknown, and an 8-year-old female from Wisconsin who developed symptoms after attending a summer camp near Scandia, Minnesota.

Geographic Distribution of Cases and Ticks

Possible tick exposures resulting in Lyme disease occurred in six Minnesota counties in 1980 (Figure 4). The geographic distribution of these cases overlaps with the recorded distribution of *Ixodes* in Minnesota, along with the previously described distribution of this

tick in northwestern Wisconsin.⁷ Ticks of this species have been reported in and around Pine County since the early 1970s. Collections have been made from dogs engaged in autumnal grouse hunting.⁸ Coincident with the first reported cases of Lyme disease in Minnesota were the first reported collections of *Ixodes* from humans in the state. In July, 1980, a Department of Natural Resources worker recovered a male tick from his body in Mille Lacs County and in September a female tick was identified on a man near Mora, Minnesota.⁸ While neither of these encounters resulted in any illness, two cases of Lyme disease were reported near these locations.

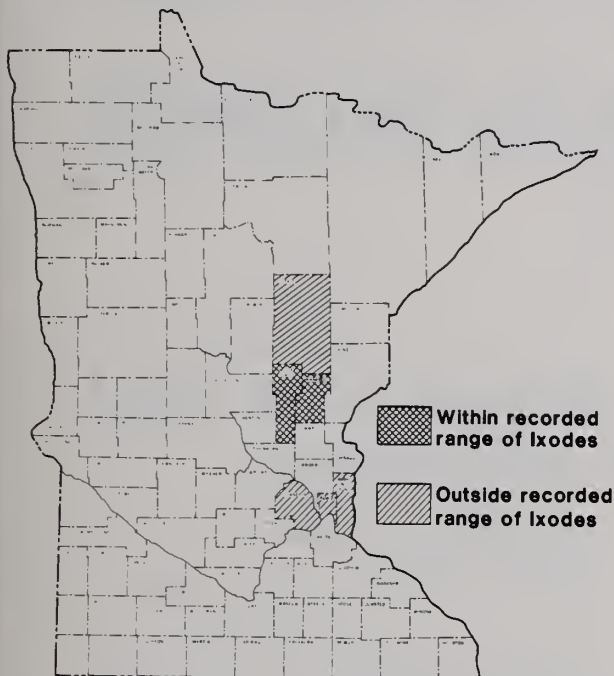


Fig. 4 — Counties in which possible *Ixodes* tick exposure occurred, for patients with Lyme disease in Minnesota during 1980.

Discussion

Lyme disease appears to be a newly recognized disease in this state. As indicated, both the ticks and disease have been reported in Wisconsin, and the tick has been collected in this state for several years. Therefore, it is not surprising that several cases were seen here in 1980. We expect that the trend to see cases from eastern Minnesota and Wisconsin will continue. Thus, it is most timely to draw our readers' attention to this disease. The disease seems to result from an infectious agent, but despite elaborate investigation no such agent has been identified. These studies have included a variety of serologic determinations together

with cultures of various anatomic sites, including the skin, synovial fluid, and cerebrospinal fluid. There has been some recent data on the role of antibiotics in this illness.⁹ It now appears that the skin lesions resolve significantly faster with penicillin or tetracycline therapy when compared with those not treated with antibiotics or treated with erythromycin. Moreover, arthritis occurred less frequently and was less severe in the penicillin treated group. Therefore, it seems reasonable to treat patients presenting with ECM with either penicillin or tetracycline. Data based on our small series would indicate rapid improvement of the rash with antibiotic treatment. Oral penicillin in a dose of 250,000 units four times a day for seven to ten days, or an equivalent dose of tetracycline has been used.

The arthritis is treated with rest, anti-inflammatory drugs, and in the more severe cases, intra-articular steroids and synovectomy. Systemic steroids may be of help in asymptomatic meningitis. This is presumably based on the fact that most of these manifestations are immunologically mediated rather than being the result of infection. Patients with the cardiac sequelae, particularly those with a high degree A-V block, or a PR interval of 0.3 seconds or more, should be hospitalized because of the danger of complete heart block. Complete heart block may require a pacemaker. Patients with myocarditis may be treated with steroids.

The current pathogenetic hypothesis is as follows: The tick *Ixodes dammini* transmits an unknown infectious agent which results in ECM. The propensity to develop Lyme Disease seems to be associated with B cell alloantigen DRw2, and the manifestations of this disease are related to immune complexes. This is based on complement studies which found abnormalities of serum C1q binding activity. The effectiveness of antibiotics argues in favor of an infectious etiology, and they may work by abbreviating antigenic exposure and thus modifying the immunologic sequelae. Genetic factors probably account for the variability in the clinical expression of this disease.

Physicians are encouraged to report cases of possible Lyme Disease to the Acute Disease Epidemiology Section, Minnesota Department of Health (612-296-5414).

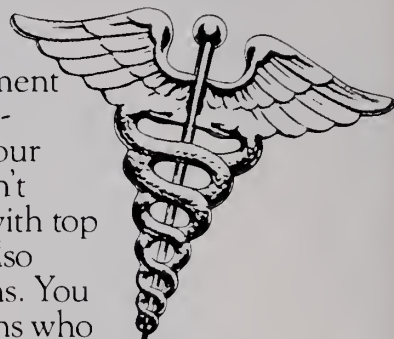
Acknowledgments

We wish to thank numerous colleagues for their encouragement and permission to present cases seen by them. Special thanks to John Stansbury, M.D., John Bergman, M.D., George Strauss, M.D., Donald Lynch, M.D., J. F. Holcomb, M.D., and Wendy Schell.

References will be found on page 234.

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The Lissencephaly Syndrome

ROBERTA L. ZIMMERMAN, B.A.;* RONALD D. HANSON, B.A.;†
DAVID J. BLOMBERG, M.D.;‡ and DONALD J. NOLLET, M.D.††

We present what we believe to be the twenty-sixth case of lissencephaly in the English literature with a brief discussion of this rare congenital malformation of the central nervous system which results from an arrest in the neuroblastic migration in early intrauterine life. Until the advent of computerized tomography lissencephaly could only be diagnosed with certainty by invasive methods such as pneumoencephalography or ventriculography. Use of the CT scan in the differential diagnosis of the child with multiple congenital anomalies involving the central nervous system may result in more frequent recognition of this condition.

THE TERM "LISSENCEPHALY" was first used by Owen¹³ in 1898 to describe the smooth brains seen in lower vertebrates. This same appearance, without sulci or gyri, is seen in human infants with the rare lissencephalic syndrome.

Case Report

This female infant was the product of a normal thirty-eight week gestation and vaginal delivery to a gravida 1, para 0-0 eighteen year-old woman. Apgar scores were seven and eight at one and five minutes respectively. The infant had some retraction and apnea, which quickly resolved after intubation and a short course of forty percent oxygen.

Birth weight was 2.63 kg (10%ile), length was 49 cm. (40%ile) and OFC 29.5 cm. (less than 3%ile). Physical examination revealed multiple congenital anomalies, including microcephaly with no palpable fontanelles and bilateral cataracts with apparent optic nerve hypoplasia. Also noted were slight slanting of the eyes, hypertelorism, low-set ears, micrognathia, cleft palate without cleft lip and a short neck. A Grade II/VI systolic murmur and systolic ejection click were heard at the left sternal border. The perineal body was short and the anal sphincter tight. The infant was hypotonic with poor sucking and rooting responses, no Moro reflex, and no localizing neurological signs.

Within twenty-four hours of birth, the baby developed continuous generalized seizures. She was treated with 20 mg./kg. of phenobarbital with little improvement, and diphenylhydantoin and valproic acid were added to the treatment regimen, attenuating, but not eliminating, seizure activity. She remained irritable, with twitching seizures, particularly of her left hand. Gavage feeding was necessary, due to poor sucking. Computerized tomography was reported as hydrocephalus with open sutures. An EEG showed high amplitude, sharp delta waves, and excessive slowing described as a hypsarrhythmic pattern. The EKG and chest and abdominal x-ray studies were normal. Testing for PKU, galactosemia and hypothyroidism were negative. The infant was stable and seizure-

free for two days when discharged from the hospital seven weeks after birth. Seizures continued intermittently and profound psychomotor retardation became evident. At the age of ten weeks, she was found dead in her crib eight hours after her last feeding.

At autopsy, she measured 58 cm. in length (25%ile), weighed approximately 4.6 kg. (15%ile) and had an OFC of 31.5 cm. (less



Fig. 1 — Smooth cerebrum with hydrocephalus.

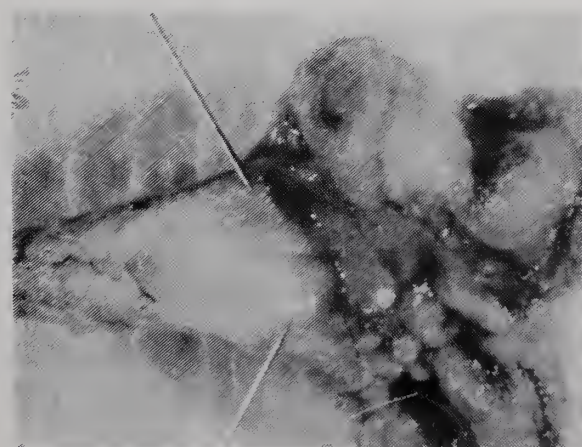


Fig. 2 — Brain stem with dilated fourth ventricle and deformed cerebellum.

Supported by a grant from the Central Mesabi Medical Foundation.

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than 3%ile). There was no evidence of trauma. The cranio-facial appearance and anomalies previously described were all noted. The aortic valve was minimally stenotic, with floppy, irregularly thickened cusps. The brain weighed 128 grams and had a smooth external appearance, with no sulci or gyri (Figure 1). The lateral ventricles were diffusely dilated and filled with fluid. The dorsal superior aspect of both cerebellar hemispheres and vermis were malformed (Figure 2). A thin membrane covered the dilated fourth ventricle. The pons was compressed by the dilated fourth ventricle and cerebral aqueduct. Microscopic examination of the brain showed an abnormal, heterotopic pattern of the cerebral cortical neurons. The cerebellar folia were thin with all four layers present, although the inner granular layer was somewhat hypocellular.

The Armed Forces Institute of Pathology (AFIP) studied the ocular malformation. Their investigation revealed degenerated posterior cortical lens fibers (posterior cortical cataract) and a decreased number of retinal ganglion cell nuclei. Marked optic nerve atrophy was also noted.

This unattended crib death was attributed to a mechanism of respiratory arrest similar to that seen in Sudden Infant Death Syndrome.

Discussion

This rare syndrome has many distinctive features, and was first reviewed in the English literature by Walker in 1942.¹⁷ Polyhydramnios is a fairly constant feature and intrauterine growth retardation may be evident.⁸ The infants are generally term products, but often exhibit respiratory distress at birth.

Clinically, the affected infants have distinctive facies,² characterized by micrognathia, high wrinkled foreheads, bitemporal hollowing, low-set ears and anteverted nostrils. Decerebrate or opisthotonic posturing is common. All exhibit seizure activity beginning at less than one year of age. They are unresponsive to their environment, suffer from severe motor retardation, fail to thrive and have frequent infections. Multiple congenital anomalies have been reported. Heart disease is common, with five of nine infants affected in one series.³ Male infants frequently have cryptorchidism and inguinal hernias. Ocular abnormalities have been reported,^{1,18} with circumlimbal clouding of the corneas seen most often. Agenesis of one kidney and duodenal atresia have been infrequently reported.

The main pathologic finding is a small brain with smooth cerebral hemispheres.² Primary fissures are absent or poorly formed. The cortical mantle is thickened with hypoplastic medullary white matter. Ventricles are markedly enlarged, a condition termed colpocephaly, as it is a persistence of a fetal condition rather than a true hydrocephaly. A cavum septum

pellucidum is usually found.

Normal cortical lamination occurs by an "inside-out" neuroblastic migration, resulting in a six-layered cortex.⁶ In lissencephaly this migration reaches the stage normally seen in the third to fourth fetal month (50-100 mm stage) and halts resulting in a two to four-layer cortex.⁹ This arrested symmetrical mass migration of neuroblasts is felt to be responsible for the absence of gyri. The gyri are formed by the bulk of the migrating neuroblasts. The sulci are not cut in from the surface. The radial alignment seen in the normal cortex is often absent. Microscopically, cortical and inferior olive heterotopia is seen, with the cell layers found in the position they attain in the third to fourth month of fetal development. In the cortex this results in abnormal lamination. This arrest in neuronal development is thought to be a programming defect. The enlarged ventricles (colpocephaly) are also characteristic of this particular fetal age. Because of the hereditary pattern^{10,11} this condition is most likely due to the homozygous state of a rare lethal autosomal recessive gene. If one child is affected, there is a one in four risk of recurrence in subsequent siblings. Both sexes are equally affected. There is no evidence to suggest that specific teratogenic agents such as irradiation or drugs might be responsible for this syndrome.

Prenatal diagnosis may be possible with the use of ultrasound.^{14,16} Microcephaly, colpocephaly and polyhydramnios would be evident. Postnatal diagnosis involves recognition of the characteristic physical appearance and clinical findings. EEG frequently reveals a high voltage hypsarrhythmic pattern.^{5,7} A computerized tomographic scan showing absent sulci and enlarged ventricles is an invaluable aid in confirming lissencephaly.^{4,12} Prognosis is hopeless, with all reported affected infants dying by age two, usually of infection.² Supportive therapy is all that can be offered, with correction of associated anomalies, if indicated.

Summary

We present this case as a reminder of the existence and distinctive clinical presentation of the rare lissencephalic syndrome. Diagnosis during life has prognostic value, because of implications for managing this hopeless condition and merits attention in regard to genetic counseling. Retrospectively, the clinical picture and computerized tomographic scan in this case were diagnostic for lissencephaly.

References will be found on page 234.

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Traumatic Fistula between the Right Pulmonary Artery and the Left Atrium

THOMAS E. YOUNG, M.D.;* PRADUB SUKHUM, M.D.,* and J. ERNESTO MOLINA, M.D., M.D.

A 30-year-old man was referred three years after a gun shot wound to the thorax because of hypoxia, erythrocytosis, and cyanosis with a normal chest Xray. Cardiac catheterization was performed which revealed approximately a 30% right to left shunt. Pulmonary angiography showed a large fistula between the right pulmonary artery and the left atrium, which was confirmed and easily corrected at surgery.

PULMONARY ARTERIOVENOUS fistulas are relatively rare congenital anomalies usually associated with hereditary hemorrhagic telangiectasia.¹ Acquired pulmonary arteriovenous fistulas are even more rare and are almost always secondary to metastatic thyroid carcinoma, hepatic cirrhosis, pulmonary schistosomiasis, or penetrating lung trauma.² There have been only three reported cases in the English literature of traumatic pulmonary arteriovenous fistulas, with all three cases showing an abnormal density on the chest Xray which aided in making the diagnosis.³⁻⁵ To our knowledge, there have been no reports of traumatic pulmonary arteriovenous fistulas without an abnor-

mal chest Xray, nor has a fistula between the pulmonary artery and the left atrium secondary to trauma been reported.

Case Report

A thirty-year-old white male was referred to St. Paul-Ramsey Medical Center for evaluation of dyspnea. This man had been in excellent health until three years prior to referral when he suffered a gun shot wound to the thorax. The bullet entered the right axilla and was found to be lodged in the wall of the esophagus. He underwent a left thoracotomy where the bullet was removed and the esophagus was repaired without difficulty. Arterial blood gas determinations during the post operative state showed a marked hypoxia (pO_2 40-50 torr) while breathing 60% O_2 by face mask. His course was further complicated by suppurative pericarditis which required several drainage procedures as well as a pericardiectomy. Since the accident, a profound decline in his exercise tolerance was noted. Previously, he had been very active and participated in handball and ten-

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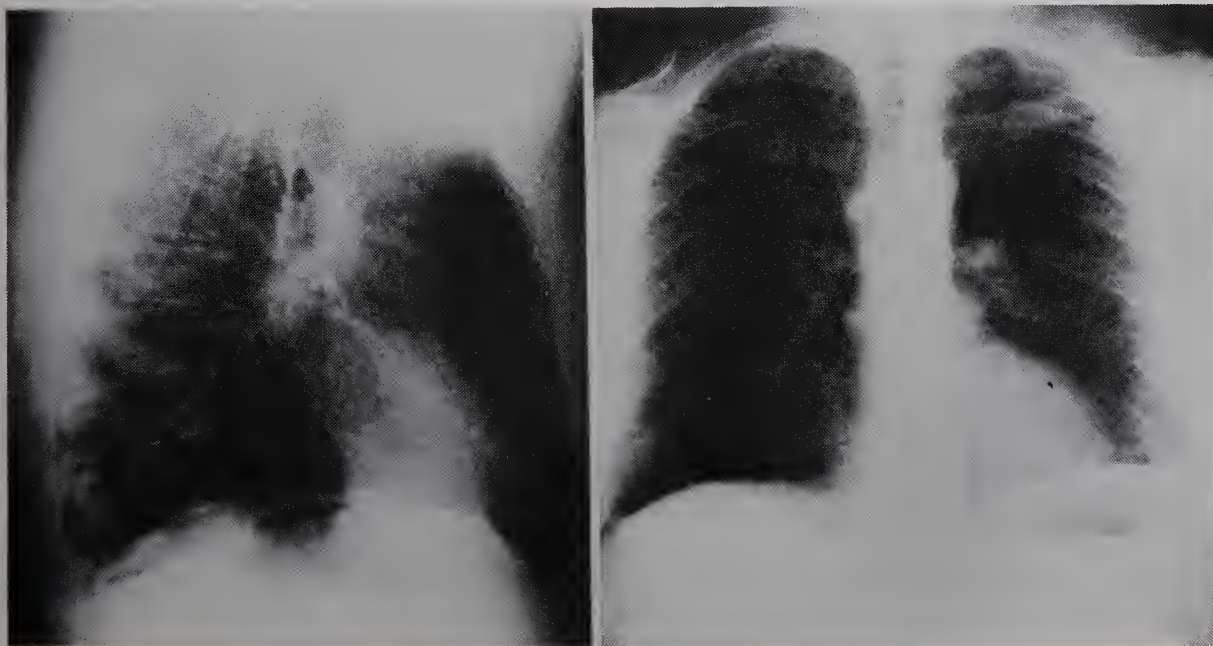


Fig. 1 — Lateral and PA chest X-ray. The cardiac silhouette is normal in size, but has a left ventricular configuration. The pulmonary vasculature is normal, and there are fibrotic changes in the left base.

nis; however, he now complained of dyspnea while climbing one flight of stairs or walking more than two blocks. He denied paroxysmal nocturnal dyspnea, chest pain, history of rheumatic fever, or history of lung disease.

Clinical Features

On physical examination, the patient appeared well developed, but perioral cyanosis was noted. The blood pressure was 130/90 mm Hg and the respiratory rate was 20/min. The heart exam revealed a regular rate of 80/min. and a widely split S₂ which varied normally with respiration. The lungs were clear, and a thoracotomy scar was noted on the left side. The extremities showed cyanosis of the nail beds, but no clubbing or edema.

The electrocardiogram showed a complete right bundle branch block. A chest Xray showed a normal cardiac silhouette and normal pulmonary vasculature (Figure 1). There were some fibrotic changes in the left base.

Laboratory examination showed a hemoglobin of 17.3 mg/dl with normal values for electrolytes, serum creatinine, and serum proteins.

Pulmonary function tests were performed. Arterial blood gases while breathing room air included a pH 7.42, pO₂ 42 torr, and pCO₂ 29 torr. The pO₂ increased to only 120 torr while breathing 100% O₂ through a rebreathing mask. Flow studies showed an FEV₁ and DL_{CO} to be 88% and 80% of the predicted values, respectively. These studies were interpreted as showing severe hypoxia with a probable right to left shunt of approximately 30% and mild air trapping as well as mildly decreased carbon monoxide diffusion.

Clinical Course

Because of the suspicion of a right to left shunt, the patient underwent cardiac catheterization and pulmonary angiography. The catheterization showed normal left and right sided pressures. The

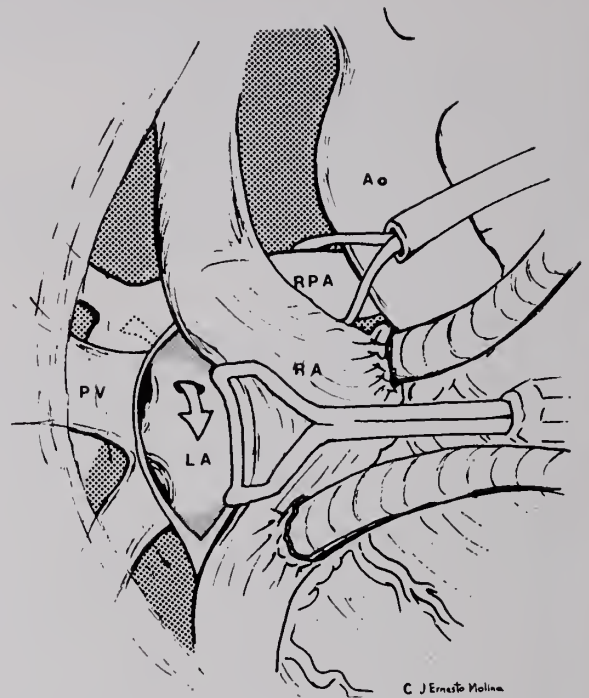


Fig. 3 — Schematic drawing of surgical findings. The right atrium is retracted to expose the left atrium which was opened on the anterolateral side. The fistulous connection from the right pulmonary artery into the left atrium is shown by the arrow. Ao, aorta; LA, left atrium; RA, right atrium; PV, pulmonary vein; RPA, right pulmonary artery.

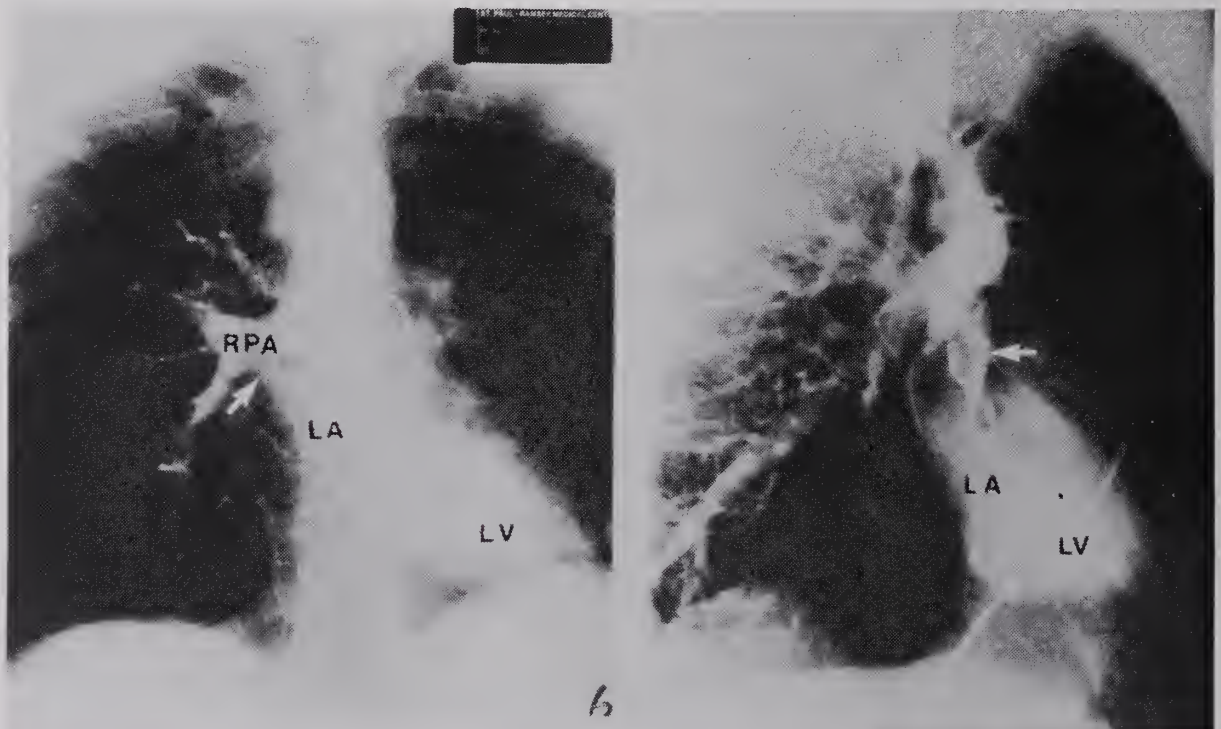


Fig. 2 — AP and lateral pulmonary angiogram. Two seconds following contrast injection, the pulmonary artery and its branches as well as the left atrium and the left ventricle are opacified. The white arrow shows the fistula between the right pulmonary artery and the left atrium. RPA, right pulmonary artery; LA, left atrium; LV, left ventricle.

cardiac output measured by the Fick method was 7.8 L/min. with a cardiac index of 3.93 L/min. The effective pulmonary blood flow was 5.47 L/min., representing a 30% right to left shunt. Selective pulmonary angiography was performed which showed a large fistula between the right pulmonary artery and the left atrium (Figure 2). At surgery, a 5 mm fistulous connection between the proximal right pulmonary artery and the left atrium was found (Figure 3). This fistula was easily repaired, and post operatively, the patient's blood gases returned to normal.

Discussion

Seventy percent of all pulmonary arteriovenous fistulas are said to be congenital and associated with hereditary hemorrhagic telangiectasia.¹ Only a small percentage are thought to be acquired and, as previously stated, are due to metastatic thyroid carcinoma, hepatic cirrhosis, pulmonary schistosomiasis or, rarely, penetrating lung trauma.²

In a retrospective study by Dines et al.⁶ at the Mayo Clinic, no cases of traumatic fistulas were found in sixty-three patients with pulmonary arteriovenous fistulas over a twenty year period. Symbas et al.⁷ studied twenty-three patients with penetrating chest wounds during a ten-month period and found no arteriovenous fistulas or aneurysms. It is not known why the incidence of traumatic pulmonary arteriovenous fistulas is so low, but a reasonable explanation is that the pressure gradient between the pulmonary artery and the pulmonary vein (or the left atrium in our case) is lower than that across the systemic vessels. This suggests that once the penetrating injury occurs, the pressure gradient is not sufficient to maintain a fistulous connection in the pulmonary circulation.

Only three cases of pulmonary arteriovenous fistulas secondary to penetrating lung trauma have been reported in the English literature. In the first case, de-

scribed by Arom and Lyons,³ the diagnosis was made ten years after a stab wound to the chest. A fistula between the right superior pulmonary vein and the right pulmonary artery was found and surgically repaired; however, the patient died of sepsis on the tenth post-surgical day. Two other cases were reported by Ekstrom et al.⁴ and Loeb et al.⁵ in which pulmonary arteriovenous fistulas were diagnosed in the right lower lobe; one due to a self-inflicted gun shot wound, one month prior to study, and the other secondary to a missile wound incurred thirty-one years earlier. Both patients underwent a right lower lobectomy and post-operatively did well and remained asymptomatic at follow up visits.

The chest Xray in all three cases showed an abnormal density which corresponded to the fistula and aided in making the diagnosis. Our patient, however, had a normal chest Xray with the exception of some fibrotic changes in the left base. This is most easily explained by the fact that the fistula was central in location, involving the proximal right pulmonary artery and the left atrium, and was hidden by the cardiac silhouette.

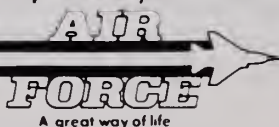
The clinical manifestation of traumatic pulmonary arteriovenous fistulas are those of a right to left shunt: hypoxia, secondary erythrocytosis, cyanosis and, if longstanding, clubbing. Frequently, an abnormal chest Xray is seen, but, as described in this report, it is not universal. In a patient with the above findings without any other obvious explanation, the diagnosis should be entertained. Pulmonary angiography with right heart catheterization is the diagnostic procedure of choice and surgical correction involving either lobectomy or ligation of the fistula is the treatment.

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Desipramine Cardiac Toxicity

PAUL CARPENTER, M.D.*, FREDARICK L. GOBEL, M.D.†, and DAREL J. HULSING, M.D.†

Excessive ingestion of desipramine, a tricyclic antidepressant, may be associated with cardiac toxicity and life threatening ventricular arrhythmias resistant to lidocaine therapy. Severe cardiotoxicity may be expected when an individual ingests more than 2.0 grams of desipramine or when the QRS duration is found to be 100 msec. or greater. Phenytoin has been recommended as the drug of choice for treating ventricular arrhythmias but lidocaine and propranolol may be useful. This report concerns a young man with severe desipramine cardiac toxicity manifested by recurrent ventricular tachycardia resistant to lidocaine therapy. The arrhythmia was eventually controlled by intravenous bretylium tosylate which was discontinued 90 minutes later because of severe hypotension. Bretylium tosylate may be indicated in patients with desipramine overdosage when ventricular arrhythmias are unresponsive to other antiarrhythmic agents. Hypotension secondary to bretylium tosylate would best be treated by a simultaneous infusion of norepinephrine.

THE USE OF tricyclic antidepressant drugs in patients who may be prone to excessive ingestion presents a problem of increasing importance. When significant quantities of desipramine are ingested, abnormalities involving the central nervous system, respiratory and cardiovascular systems may be present. Cardiac arrhythmias from desipramine may be particularly resistant to drug therapy.

The opportunity to observe and treat desipramine cardiac toxicity in a young man with resultant cardiac arrhythmias, including recurrent episodes of ventricular tachycardia, prompted this report. Bretylium tosylate was particularly effective in abolishing ventricular tachycardia which appeared resistant to lidocaine.

Case Report

A 29-year-old man with a history of depression was being treated with a daily dose of 200 mg. desipramine (Norpramin®). On the day of admission he ingested approximately 2.5 grams of this drug. He was ambulatory and normal appearing on arrival at the emergency room but soon became agitated, developed twitching of the extremities and then began to have seizures. Treatment in the emergency room included gastric lavage followed by charcoal instillation, diazepam 30 mg. I.V., physostigmine 4 mg. I.V., and an initial injection of 100 mg. of lidocaine followed by an infusion of lidocaine at a rate of 4 mg/min.

At the time of transfer to the intensive care unit, one hour after arrival at the emergency room, the patient was unconscious, required controlled ventilation and was having nearly continuous seizure activity. Recurrent episodes of ventricular tachycardia developed

and became sustained in spite of an additional 100 mg. lidocaine bolus during a continuous infusion of 4 mg/min. Total lidocaine administered at this time was approximately 450 mg. He required 400 watt second countershock on four occasions for recurrent ventricular tachycardia associated with hypotension. Bretylium tosylate was then given as a 500 mg. bolus I.V. followed by a continuous infusion of 1.5 mg/min. This resulted in cessation of the ventricular arrhythmia and the patient remained in sinus rhythm thereafter. However, shortly after the bretylium tosylate was given the blood pressure began to fall. Expansion of the blood volume with crystalloid and colloid was then followed by infusion of dopamine but the systolic pressure continued to fall to 55-60 mm Hg despite maximal doses of dopamine and vigorous expansion of the intravascular volume. An injection of 10 mg. of metaraminol (Aramine®) at a rate of 1 mg/min. also had no effect. Epinephrine, 0.3 mg. I.V., resulted in only a temporary increase in blood pressure. A continuous infusion of epinephrine was successful in maintaining the blood pressure greater than 90 mm Hg only after the infusion of bretylium was discontinued. The epinephrine infusion was then slowly tapered and eventually discontinued 12 hours later. The entire period of hypotension lasted about 90 minutes. The urine output was poor during this period but responded promptly to intravenous furosemide. Neither acidosis nor hypokalemia was present.

Seizure activity responded to neither physostigmine nor diazepam given in the emergency room, but continued with decreased frequency after the patient was given sodium amobarbital and phenytoin in the intensive care unit. Phenytoin (100 mg.) was initially given I.V. 35 minutes after commencing bretylium tosylate and then repeated three hours later. The seizure activity gradually subsided over the subsequent 12 hours.

The following morning the patient was much improved and was able to respond to verbal commands. He continued to have involuntary muscular twitching but the cardiac rhythm was stable. On the second day following admission he developed bilateral moist rales, hypoxia and pulmonary infiltrates felt to be compatible with the adult respiratory distress syndrome. Vigorous diuretic and steroid therapy resulted in marked improvement in the pulmonary

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problems over the next 24 hours. Thereafter his recovery was complete and uneventful.

Discussion

This patient exhibited many of the signs and symptoms associated with severe desipramine toxicity. The history of ingestion of 2.5 grams of desipramine and the prolonged QRS duration on the electrocardiogram provided strong predictive evidence for the development of serious desipramine cardiac toxicity even though the patient initially appeared normal on arrival at the emergency room. Once he lost consciousness and seizure activity developed, physostigmine did not appear to be helpful. Seizure activity was also resistant to diazepam but later partially responded to sodium amobarbital and phenytoin. Bretylium tosylate, but not a therapeutic amount of lidocaine was successful in preventing recurrent ventricular tachycardia.¹ Continued suppression of the ventricular arrhythmias after bretylium was discontinued may be related to a sustained effect of bretylium or further suppression by phenytoin initially given during the bretylium infusion.

Previous reports have suggested that ventricular arrhythmias resulting from desipramine toxicity are best treated with phenytoin, with lidocaine and propranolol as additional useful agents.²⁻⁴ Phenytoin may be effective in doses as low as 1 mg/kg.² Lidocaine has not been a particularly effective drug and in some instances seems to aggravate the problem, which may have been true in this case.² Quinidine, procaine amide (Pronestyl) and disopyramide (Norpace) are contraindicated because of their depressant effects on intracardiac conduction.^{3,4} However, if serious ventricular arrhythmias persist a trial of bretylium is warranted while observing closely for the development of hypotension.

The marked hypotension encountered following successful suppression of ventricular arrhythmias may have been related to the hypotensive side effects of both bretylium and desipramine. Bretylium causes an early release of norepinephrine from the adrenergic postganglionic nerve terminals and then subsequently blocks the release of the norepinephrine in response to neuronol stimulation.⁵ Desipramine, in therapeutic doses, inhibits neuronal catecholamine uptake and in toxic doses it is thought to promote hypotension by peripheral alpha adrenergic receptor blockage as well.⁴ Phenytoin infusion may also be associated with hypotension but in this case it was given following the occurrence of hypotension. Epinephrine was effective in raising the blood pressure while dopamine and metaraminol were not. Both dopamine and met-

araminol require the release of stored norepinephrine from the adrenergic nerve terminal for their vasopressor action. Thus, it appears that in this clinical setting dopamine and metaraminol were ineffective in stimulating norepinephrine release.

Desipramine is rapidly absorbed from the intestinal tract and can result in the appearance of toxicity in minutes to hours. The most dangerous period appears to be the first 12-24 hours but prolonged coma and arrhythmia with death may occur as long as five days following ingestion.^{6,7} Desipramine toxicity is due to two major adverse effects: (1) a potent anticholinergic effect and (2) a direct toxicity on the myocardium and conducting system. Anticholinergic symptoms include delirium, hyperreflexia, sinus tachycardia, and coma. These symptoms may be related to excessive dopamine activity in the central nervous system where the acetylcholine influence has been suppressed by the desipramine.⁶ Cardiac toxicity may be due to inhibition of the adenosine triphosphate (ATP)-phosphohydrolase enzyme involved in maintaining the sodium-potassium balance across the myocardial cell membrane.⁶ The resultant myocardial depression and irritability is potentiated by hypokalemia and acidosis, both of which are frequently associated with desipramine toxicity. Desipramine also affects the myocardial conducting tissue as manifested by prolongation of the PR and QRS intervals.

Predictors of severe toxicity from desipramine would include the following: (1) Ingesting of greater than 2.0 grams.^{3,8} (2) A QRS duration of 100 msec. or greater within the first 24 hours.^{4,8} The QRS duration returns to normal as the myocardial toxicity disappears. (3) Significant central nervous system symptoms including coma and seizure activity. (4) Plasma desipramine levels greater than 1,000 mg/ml.⁸

Treatment of a patient with desipramine toxicity should include gastric lavage with instillation of activated charcoal, early ventilatory support, and fluid therapy if hypotension exists. Electrolytes and arterial blood gases need to be carefully monitored in order to rapidly correct hypokalemia or acidosis. The central nervous system symptoms which are due to the anticholinergic effects of the desipramine drugs may respond to 1-4 mg. physostigmine, an acetylcholinesterase inhibitor, given intravenously. On occasion larger amounts and a continuous intravenous infusion may be necessary.⁷ The unconscious patient may awaken and convulsions stop following the administration of physostigmine.⁷ If seizures persist phenytoin, diazepam or sodium amobarbital may be helpful. Charcoal hemoperfusion has been reported to be helpful.⁹

10-31-78 (4:30pm- Emergency Room)

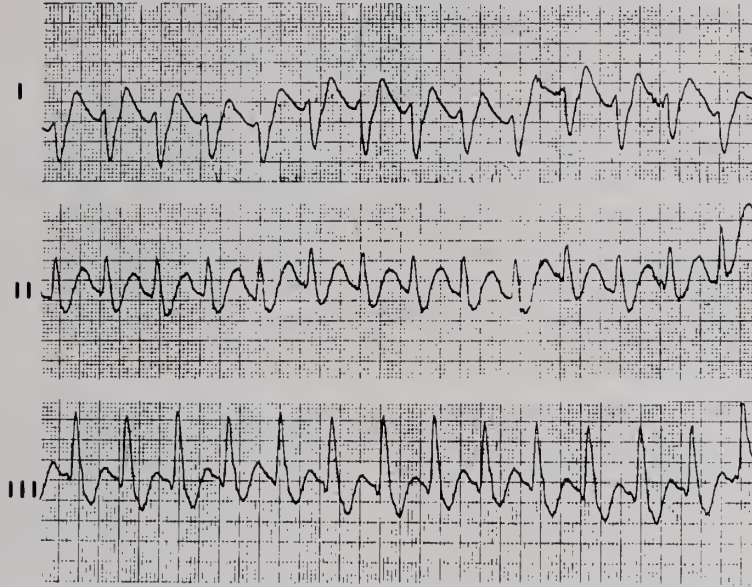


Figure A

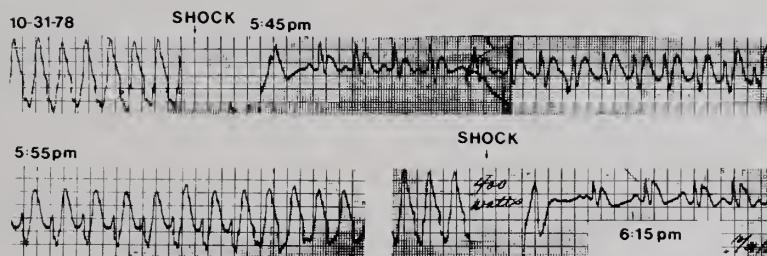
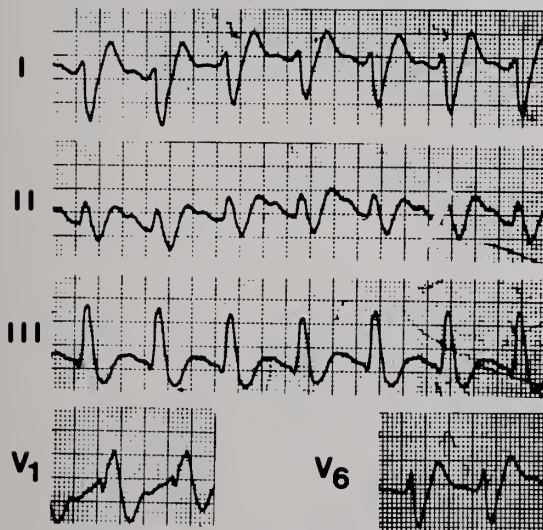


Figure B

6:30pm ICU



10-31-78

Figure C

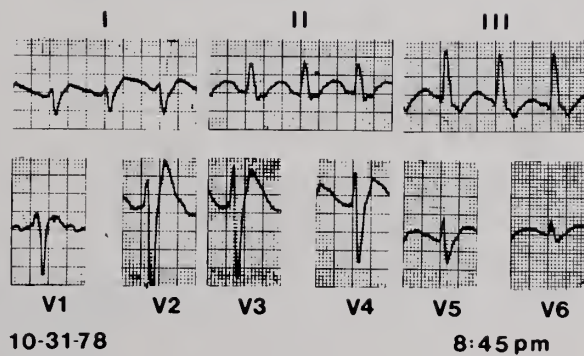


Figure D

Figures (A), (B), (C) and (D) — The electrocardiographic sequence is illustrated. The electrocardiogram recorded at 4:30 PM in the emergency room (A) revealed a regular supraventricular tachycardia of 115 bts/min. with a QRS duration of 0.16 seconds and a pattern simulating a right bundle branch block. The 6:15 tracing (B) reveals two episodes of ventricular tachycardia treated with DC cardioversion. The 6:30 (C) and 8:45 (D) tracings indicate first degree heart block and continued prolonged QRS duration. An electrocardiogram recorded nine days following admission is normal.

Acknowledgments

We would like to thank Drs. Jack Shrouts and Hans Baur for their

help in the care of this patient.

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Lissencephaly Syndrome — Zimmerman et al. (page 224).

Lyme Disease and Erythema Chronicum Migrans in Minnesota — Williams et al. (page 221).

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Decline in Coronary Deaths

A Search for Explanations

The Minnesota Mortality and Morbidity Surveillance Program

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Coronary heart disease death rates have declined sharply since the early 1960s. The Minnesota Mortality and Morbidity Surveillance Program is examining changes in incidence, case fatality, hospital care and risk factors to find explanations.

MAJOR TRENDS IN cardiovascular disability, illness and death occur in this country which are neither explained nor predicted. However, it is essential for a rational public health policy to understand the evolution of chronic diseases. Cardiovascular diseases in populations are influenced by socio-economic, environmental, cultural and behavioral factors acting on an apparently widespread genetic susceptibility. Their physiological manifestations and risk factors can be measured. It is feasible to survey and analyze many of these features of disease.

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Reprints can be obtained from Dr. Gillum at the Laboratory of Physiological Hygiene.

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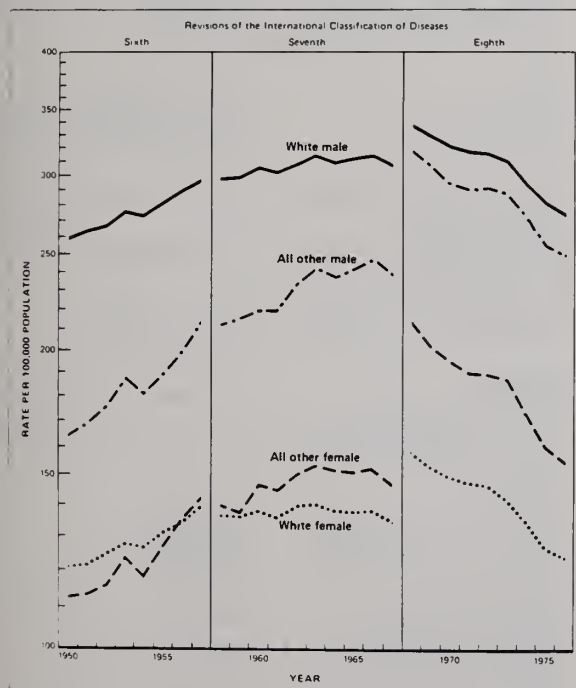


Fig. 1 — Age-adjusted death rates for coronary heart disease, by color and sex; United States, 1960-76. (Reproduced from Proceedings of the Conference on the Decline in Coronary Heart Disease Mortality, Washington, D.C., the National Heart, Lung and Blood Institute).

Much attention in cardiovascular medicine is now devoted to the “disappearance” of coronary heart disease.¹⁻⁷ The apparent wane was detected after a nearly twenty-five percent decrease in death rates occurred over a seven-year period. By the mid-1970s it was clear that reported deaths from coronary disease had actually been decreasing for nearly a decade (Figure 1). It is still not possible to assign the causes of the decline or to know whether there is a decrease in incidence of nonfatal infarction to accompany the clearly diminished deaths certified to coronary heart disease. Research, public health programs, lifestyle changes and improvements in medical and surgical intensive care are all thought to have contributed. A number of the nation's cardiovascular experts met in Bethesda in late 1978 to ponder the downward trend and to map new strategies for solving this mysterious “disappearance”. The evidence is summarized in the proceedings of that conference and in several other reviews.¹⁻⁵ We will discuss here the strategies being used to detect, explain and predict cardiovascular disease trends in Minnesota by attempts to measure changes in disease rates, in cardiac care, in risk factors, and in health behavior.

The Minnesota Mortality and Morbidity Surveillance Program

Mortality rates for coronary heart disease and other causes in Minnesota and the Twin Cities metropolitan area are shown in Figures 2 and 3 for the years 1960-1975. Declining trends in coronary disease mortality seen locally are parallel in most respects to those described for the United States (Figure 3).⁵ Methods used in computing these rates are described below and elsewhere in detail.⁶

In 1976 we began planning a study to investigate the causes of declining coronary heart disease mortality in Minnesota. The surveillance is limited to the Twin Cities metropolitan area and four outstate communities. This approach, so far unique, to determining

trends in coronary heart disease mortality and their possible causes is called the Minnesota Mortality and

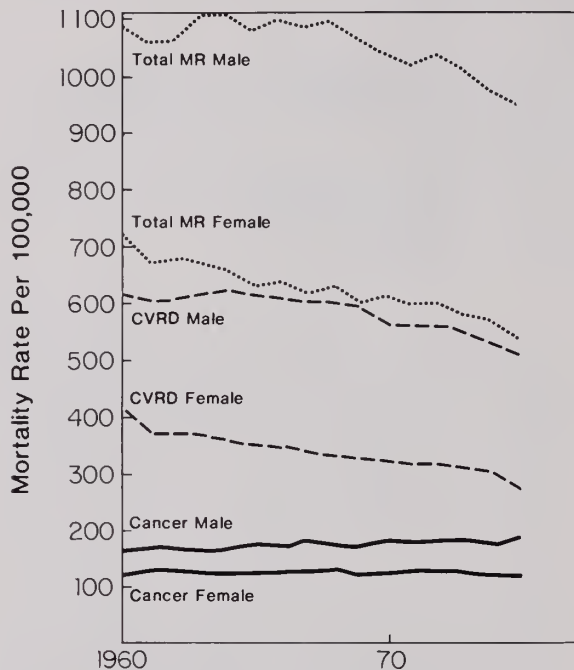


Fig. 2 — Minnesota mortality rates 1960-75, whites, both sexes, all ages adjusted to the 1970 white male age structure. Cardiovascular renal disease, CVRD = ICD7 330-334, 400-402, 410-416, 420-422, 430-434, 440-447, 450-456, 460-468, 592-594 for 1960-1967; ICD8 289.1, 289.2, 289.3, 390-398, 400-404, 410-414, 420-429, 430-438, 440-448, 450-458, 582-584 for 1968-1975.

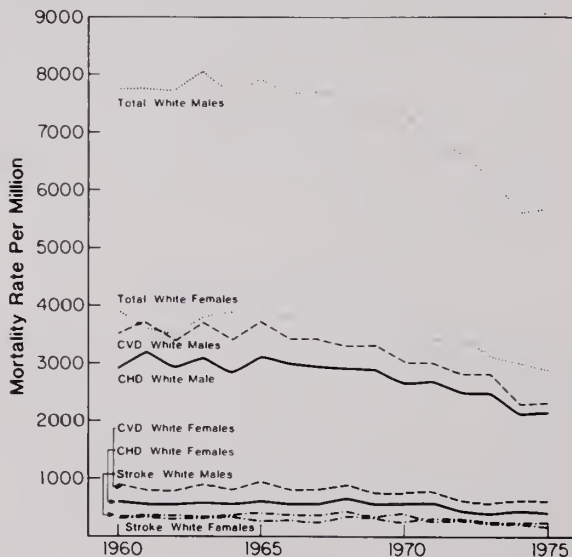


Fig. 3 — Twin Cities metropolitan area mortality rates 1960-1975, adjusted to the 1970 white male age structure. Major cardiovascular renal disease, CVRD, see Figure 2 for ICD codes; ischemic (coronary) heart disease, CHD = ICD7 420.0, 420.1, 420.2, 422 for 1960-1967 and ICD 8 410-414, 428 for 1968-1975; stroke = ICD7 330-334 for 1960-1967 and ICD8 430-438 for 1968-1972.

Morbidity Surveillance Program (MMMP) and its survey arm is the Midwest Heart Survey.

The following hypotheses are being tested in the larger unit, the seven-county greater metropolitan area of the Twin Cities: (1) The decline in coronary heart disease mortality is due in part to a decline in incidence of myocardial infarction and sudden cardiac deaths. (2) The decline in coronary heart disease mortality is due in part to a decline in hospital mortality and changes in hospital and pre-hospital care. (3) The decline in stroke mortality is mainly due to a decline in incidence of cerebral thrombosis and hemorrhage with little change in case fatality rates. (4) The decline in coronary heart disease and stroke mortality is associated with downward trends in adult population levels of blood pressure, blood cholesterol and cigarette smoking. (5) Population changes in levels of these factors are associated with changes in specific health habits.

The salient features of the Minnesota Project are summarized in the Table.

TABLE

Data to be Collected in the Minnesota Mortality and Morbidity Surveillance Program

Variables	Data Points	Source
Mortality		
Total	1960-1983	State Health Department
Age-, Race-, Sex-Cause-specific mortality	1960-1983	
Out-of-hospital mortality (MI)	1968-1983	
Morbidity		
MI, stroke occurrence	1970, 1979-1980	Direct hospital discharge surveillance
Case fatality rate	1970, 1979-1980	
Medical Care Indicators		
Coronary care, pre-hospital and in-hospital	1970, 1979-1980	Hospital records
Resuscitations, pre-hospital and in-hospital	1970, 1979-1980	
Discharge medications	1970, 1979-1980	
Coronary bypass operations	1970, 1979-1980	
Risk Factors		
Risk score (combined smoking, blood pressure, serum cholesterol)	1980-1982	Population surveys
Smoking (% smokers)	1980-1982	
Blood pressure		
Systolic blood pressure	1980-1982	
Diastolic blood pressure	1980-1982	
Serum cholesterol (total HDL)	1980-1982	
Leisure time physical activity (Kcal/day)	1980-1982	
Knowledge, attitudes and behavior related to risk factors	1980-1982	
Macro-social, Ecologic		
Unemployment	1960-1982	State of Minnesota
Temperature, snowfall	1960-1982	

The Surveillance Area

Mortality, morbidity and risk factor surveillance is focused on the seven-county Twin Cities metropolitan area. This area covers approximately 2800 square miles and includes Minneapolis (1970 population: 434,400) and St. Paul (1970 population: 309,980). The 1980 population for the seven-county area was 1,980,918. The area was 97.3% white in 1970, with a median income of \$11,682. There were 37 acute care hospitals in 1970, and currently there are 32 such hospitals.

Identical procedures are used in other areas to test hypotheses about the effects of systematic community education programs. These surveillance areas include in Minnesota, Winona (1970 population: 26,438), Moorhead (1970 population: 29,687); Mankato, (1970 population: 30,895), Fargo, North Dakota (1970 population: 53,365), and Sioux Falls, South Dakota (1970 population: 72,488).

Mortality Surveillance

The Laboratory of Physiological Hygiene of the University of Minnesota has long had a close relationship with the Center for Health Statistics of the Minnesota Department of Health, which supplies yearly computerized mortality data for the state of Minnesota and the seven-county metropolitan area. Data for 1960 through 1978 are currently on hand and will be collected during the present study through 1983. Deaths, births and estimates of migration are used to estimate an age-, race-, sex-, county-specific population base for each year of the study.⁶ The primary cause of death is obtained from tapes provided by the Minnesota Department of Health. Mortality rates are computed for each age-, sex-, race-group. Rates for ages 35-74 combined are age-adjusted to the 1970 white male population for all comparisons. The accuracy of death certificate diagnosis is validated on a random sample of deaths by comparing the death certificate diagnosis with that reached by review of hospital and physician records and by interviews with next of kin.

Hospital Morbidity Surveillance

To estimate coronary heart disease and stroke incidence, nonfatal cases are enumerated through surveillance of hospital discharges.⁸ Thirty-one of the 32 acute care hospitals in the seven-county area are actively cooperating with the study, as are all hospitals in the outstate communities.

Three time periods were selected for study: all of 1970, January through June of 1979, and all of 1980. These years were chosen to coincide with census

estimates and to bracket the period of greatest mortality decline. The study is notified of every hospitalized case of coronary heart disease and stroke occurring during these periods by hospitals supplying lists of all discharges that include diagnoses of acute coronary heart disease (ICD9CM 410, 411), acute stroke (ICD9CM 431, 432, 434, 436), chronic coronary heart disease (ICD9CM 412-414), chronic stroke (ICD9CM 437, 438), and other cardiovascular and pulmonary conditions with which coronary heart disease or stroke might be confused or associated. Analysis of these data allows an estimate of the number of hospitalizations for myocardial infarction and stroke.

To ensure comparability between study years of the diagnosis of acute myocardial infarction and acute stroke, a random sample of cases from the discharge lists provided (10% in 1979, 50% in 1970 and 1980) is subjected to more intensive study and validation with strict safeguards of confidentiality for the following purpose: (1) to determine whether the case was a first or recurrent event; (2) to apply a set of uniform diagnostic criteria, developed by the investigators and expert consultants.⁹⁻¹² In addition, subsets of cases, patterns of symptoms, electrocardiographic findings and enzyme values will be defined for direct comparison over time and between studies; (3) to develop estimates of case severity that can be evaluated over time as determinants of changing case fatality. Case fatality and one-year survivorship will be determined by examining hospital fatalities and determining whether cases discharged alive appear on state death records over a one-year period following hospital discharge. Analysis of these data will permit conclusions bearing upon the first two hypotheses about incidence and case fatality. (4) to assess the role of medical care in trends of case fatality and survivorship. Selected data on interventions thought to influence coronary and stroke mortality, are collected. These include admission to a coronary or intensive care unit, pre-hospital or in-hospital cardiopulmonary resuscitation or defibrillation, use of specific anti-arrhythmic drugs and coronary bypass surgery. Analysis of these data should shed light on hypotheses 2 and 3. All data are collected in strict confidence and are neither analyzed nor reported for any particular patient, hospital, or physician. Rather, aggregate data trend analysis will provide evidence for the entire area.

Risk Factor Surveillance

To assess trends in the established coronary and stroke risk factors, surveys of random samples of the seven-county population and outlying areas are conducted annually. Households within a stratified

cluster sample are selected to be representative of the entire seven-county area. Each is visited by a survey interviewer. A questionnaire is administered concerning cardiovascular risk factors and knowledge, attitudes and health behavior thought to influence cardiovascular risk (Table). All subjects between the ages of 25 and 74 living within the household selected are eligible. All of the 1500 to 2000 subjects completing the home interview each year are promptly invited to an appointment made to visit a conveniently located survey center, where detailed physical and biochemical measurements are made. These measurements include blood pressure, serum total cholesterol, serum HDL cholesterol, height, weight, leisure time physical activity questionnaire, 24-hour food recall, Jenkins Activity Survey for coronary prone behavior. With consent of the participant, results of blood pressure and cholesterol measurements are provided to the participant's physician. Values in excess of specified normal laboratory or blood pressure criteria result in prompt referral to the personal physician named, along with complete test results. No medical care nor advice is provided by the investigators or study staff.

Analysis

The population is sufficiently large to yield stable disease rates, yet circumscribed and homogenous enough to avoid much averaging out of environmental variation as occurs in state-wide or national data. Thus, trends in mortality, morbidity, risk factor levels and their associations may be more directly related than in national data. Figure 4 is a graphic presentation of real (1960-75 mortality) and hypothetical data from the study. In such a hypothetical case, one might conclude

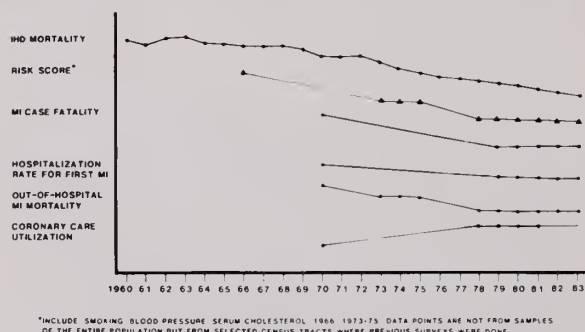


Fig. 4 — Hypothetical data points that might result from the Minnesota Mortality and Morbidity Surveillance Program.

that falling coronary mortality is due chiefly to falling hospital case fatality and pre-hospital fatality. This, in turn, might be attributed to increased coronary care utilization and improved ambulance services. The decline in risk factor scores might account for both the small decline in first myocardial infarct admissions and the decreased case fatality, through reduced severity.

Improved models and methods for analyzing these data are developing, including time-series design. Mortality and morbidity data points will embrace at least a decade. Risk data are projected for a similar period but are now limited to the three years of the current study. However, some comparisons with risk factor data collected in population-based samples by this laboratory during the early 1970s may be possible.

One of the objectives of this study is to provide models for regional surveillance in the United States. Prospectively, the hypothesis could be tested that trends in standard risk factors are followed, say, in x years by trends in coronary heart disease mortality and morbidity. Retrospectively, mortality and morbidity analyses should answer whether the changes observed during the 1970s were related to changing case fatality or to changing incidence of new disease.

Summary

The Minnesota Mortality and Morbidity Program and its survey arm, the Midwest Heart Survey, are measuring trends in coronary heart disease and stroke mortality, hospitalization and case fatality rates as well as trends in risk factor prevalence and health behaviors in the seven-county Twin Cities metropolitan area and several outstate midwest communities. Trends in mortality will be ascribed to changes in incidence and/or case fatality (including sudden death) and these in turn related to changes in risk factor distributions, health behavior and medical care.

Acknowledgments

The authors would like to acknowledge the important contributions of the following persons to the initiation and operation of this program: Drs. Howard Burchell, Lael Gatewood, Ivan Frantz, Jr., Victor Grambsch, Milton Ettinger, Judith Baxter, Mses. K. C. Jenkins, Joan Knudsen, Gretchen Newman, and Mr. Dean Surbey of the University of Minnesota; Dr. Lila Elveback of the Mayo Clinic Foundation, Drs. Paul Gunderson, Warren Lawson, Mr. Fred King, Ms. Eunice Sigurdson and Mr. William Weir of the Minnesota Department of Health, Ms. Hazel Reinhardt, Mr. R. Thomas Gillaspay and Mr. Stephen Heeringa of the Minnesota Demographer's Office, and Mr. Russell Hankins of the Foundation for Health Care Evaluation.

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Minnesota Medical Association

Fifty Years of Faithful Service 1982 Fifty Club

Each year at its annual meeting, the Minnesota Medical Association honors those members who have been in the practice of medicine for fifty years. Criteria for membership in the Fifty Club require that the physician has had a license to practice medicine for 50 years and has spent most of those 50 years in Minnesota. The Minnesota Medical Association extends its appreciation and congratulations to the following physicians, who will be recognized as new members of the Fifty Club on May 27, 1982:

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Practical Management of Eyelid Trauma

RICHARD P. CARROLL, M.D.*

Because patients with eyelid trauma are often seen by the family physician either in the office or the emergency room, it is important that the family physician be familiar with the fundamental principles involved in the management of eyelid trauma. The purpose of this paper is to outline these principles based on the author's experience with approximately 250 patients with eyelid trauma.

CARDINAL RULES IN THE treatment of eyelid trauma are listed in Figure 1. Time and location that the injury occurred, special circumstances surrounding the incident, whether safety glasses were worn, and a notation of any prior treatment should all be carefully recorded on the patient's record. The most accurate history is often obtained by the physician initially seeing the patient, and may prove essential in resolving later compensation claims or medical-legal disputes.

Before administering drops or treating the patient in any way, the physician should obtain and record the visual acuity in each eye with the fellow eye covered. Many patients have amblyopia (lazy eye) of which they are unaware until something happens to call their attention to their disability. If the visual acuity is not recorded prior to treatment a completely unrelated visual problem may be attributed to the treatment administered by the unsuspecting physician. If a standard visual acuity chart is not available, the patient may be asked to look at newsprint for example. The physician then carefully records in the patient's chart the size newsprint read with each eye.

The eyeball under the traumatized eyelids must receive a thorough examination to avoid missing associated injury to the globe, but the examining physician is sometimes wise to defer this examination to the specialist. This is particularly true if the lids are very edematous and the possibility of a penetrating injury to the globe exists. Injudiciously prying the lids open may result in extrusion of the intraocular contents, seriously compromising the prognosis for useful vision.

Anatomy

The basic anatomy of the upper eyelid is shown in

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Reprints to: Richard P. Carroll, M.D., 901 Medical Arts, Minneapolis, Minnesota 55402.

Figure 2. The physician undertaking eyelid repair is referred to *Anatomy of the Orbit* by Beard and Quickert for a beautifully illustrated discussion of eyelid anatomy.¹

Blunt Injuries

Eyelid trauma is conveniently divided into blunt

CARDINAL RULES IN THE TREATMENT OF EYELID TRAUMA

Take a careful history.

Obtain and record best possible visual acuity before doing anything else.

Examine the globe carefully but thoroughly.

Obtain appropriate radiologic studies.

Commit oneself to taking the time necessary to insure obtaining the best possible primary repair.

Figure 1

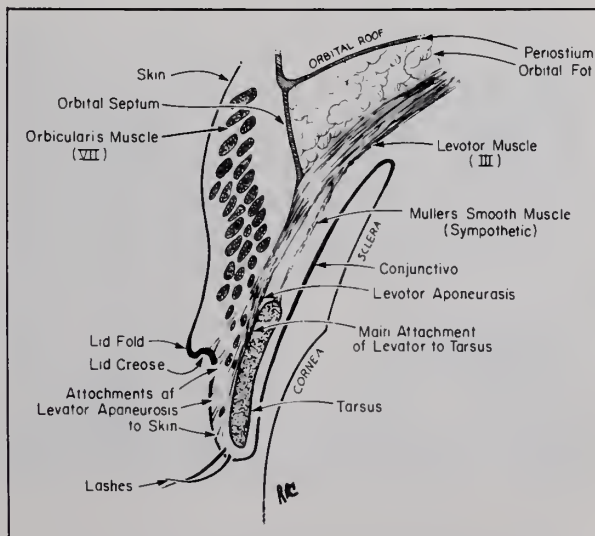


Fig. 2 (Carroll) Anatomy of the upper eyelid.

injuries and penetrating injuries. The patient who has sustained blunt trauma to the eyelids generally presents with a variable amount of ecchymosis with or without subconjunctival hemorrhage. These patients have often been struck in the orbital region by either a fist or a ball. They must not be dismissed as simply having a "black eye" because many of them will have associated involvement of the globe or an accompanying orbital fracture. A thorough ocular examination must be performed on each of these patients either by the physician who first sees the patient or subsequently by the ophthalmologist. This examination should include a search for corneal lacerations, hyphema or blood in the anterior chamber, a distorted pupil indicating rupture of the globe, vitreous hemorrhage, and retinal detachment. A dilated fundus examination is mandatory. Preservation of vision obviously takes priority over management of injury to the eyelids or other extraocular structures.

Extraocular motility should be carefully evaluated. Subjective diplopia with restriction of movement may indicate the presence of an orbital fracture and require appropriate radiologic studies. Caldwell and Waters views of the affected orbit are most helpful in the diagnosis of "blowout" fracture of the orbital floor, the most frequently seen orbital fracture. Should the diagnosis still be in question, planograms or even CT scan may be required. The physician must also keep in mind the possibility of other associated facial fractures.

The patient with an orbital floor fracture will sometimes have diplopia on upgaze due to entrapment of the inferior orbital soft tissues in the fracture site. The eyes of the patient in Figure 3 look normal in primary gaze, but on looking up the left eye does not

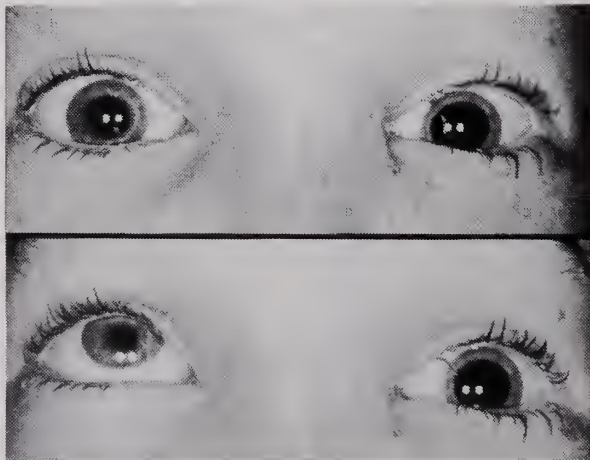


Fig. 3 (Carroll) "Blowout" fracture of left orbital floor. Inability to elevate left eye because of entrapped orbital soft tissues in fracture site. The eyelids appear normal in primary gaze.

move up and the patient reports double vision. Entrapment of orbital soft tissue is the chief indication for surgical repair of an orbital floor fracture. It must also be emphasized that many orbital floor fractures do not require surgical intervention, and in fact surgery is contraindicated in many cases.² Only by careful assessment of the individual patient can the physician make this decision. Postoperative complications such as diplopia and enophthalmos are almost always managed by the ophthalmologist and their significant incidence is often not fully appreciated by other specialists who become involved in the management of these patients.

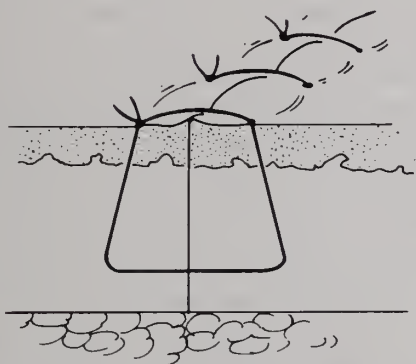
One must keep in mind that approximately 30% of the patients with orbital fractures will have an associated serious injury to the globe,³ once again underscoring the need for a thorough ocular examination. It is also important to know that surgical repair of the orbital fractures is almost never urgent, allowing the physician plenty of time to obtain appropriate consultation. Hasty surgical intervention without adequate preoperative assessment may result in postoperative visual loss being blamed on the surgery when in fact the developing optic atrophy may have been due to the underlying injury.

Penetrating Injuries

The repair of penetrating injuries to the eyelid depends on two major factors, the depth and the location of the injury. Superficial lacerations involving only the eyelid skin and the orbicularis muscle usually require only simple skin sutures; however, to avoid unnecessary scarring, basic principles of plastic repair must be kept in mind. These include appropriate debridement of the wound edges, the use of small caliber sutures, striving for everted wound edges, and early suture removal. Thorough cleaning of the edges of a laceration should be done before suturing the wound to avoid tattooing of the laceration site postoperatively. On the other hand extensive debridement of eyelid lacerations is to be avoided since the excellent vascular supply to the eyelids makes even fragments of tissue that are completely avulsed suitable for suturing into place as free grafts. If the physician who first sees the patient is not going to repair the eyelids, any avulsed tissue should be carefully wrapped in a saline soaked gauze and delivered with the patient to the surgeon.

Large caliber sutures in the eyelids promotes unnecessary scarring and a less than optimal result. The smallest caliber of sutures, usually 6-0 or 7-0, that will satisfactorily do the job should be used. Whether

nylon, silk or other materials are used for the closure, is a matter of individual preference. Whichever type of suture is chosen, the surgeon must strive for everted wound edges at the time of suturing to allow for the normal flattening of the suture line that occurs during late wound healing. Placing the sutures as illustrated in Figure 4 will avoid depressed scars and epithelial cysts in the suture line.



Equal "Trapizoid" Bite and Proper Tension = Everted Skin Edges

Fig. 4 (Carroll) Equal "Trapizoid" bite and proper suture tension will result in desirable eversion of the skin edges.

Superficial skin sutures in the eyelid are usually removed four or five days postoperatively. Sutures left in too long give rise to hatch marks perpendicular to the line of closure that may require secondary revision.

The physician must remember that even the most



Fig. 5 (Carroll) Patient stabbed in the left orbit with a five inch knife blade sustained only a transection of the lateral canthal tendon. A significant discrepancy is sometimes found between insult and injury.

innocuous appearing eyelid or eyebrow lacerations may be associated with serious injury to the globe. Classic examples are the student that has been stabbed with a pencil or the patient that has been stabbed with an ice pick. Sections of the bony orbit are very thin and intracranial penetration must be considered with such injuries. On the other hand, there may be significant discrepancy between the insult and the resulting injury as illustrated by the patient in Figure 5. This 30-year-old patient was stabbed through the lateral canthal tendon with a five-inch knife blade. In spite of the knife's course through a myriad of vital structures the only significant injury was the transection of the lateral canthal tendon.

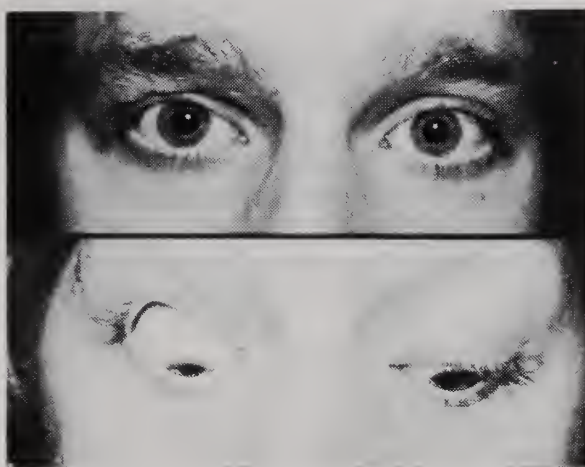


Fig. 6 (Carroll) Orbital septum become incorporated in the superficial sutures in this repair of a right upper eyelid laceration resulting in lagophthalmos in downgaze. The eyelids appear normal in primary gaze.

In addition to the above concerns, deeper lacerations of the eyelid require careful assessment of the status of the levator muscle and the orbital septum prior to suturing. The levator muscle is innervated by the third cranial nerve and is responsible for elevation of the eyelid. Failure to repair a transected levator muscle will result in a partial or complete ptosis postoperatively. Excellent results following secondary repair of traumatic ptosis can usually be expected in the hands of a competent ptosis surgeon; however, it is best to avoid a secondary procedure by carrying out a proper primary repair. It is important to allow at least six to nine months for spontaneous resolution of a traumatic ptosis before proceeding with secondary repairs. If improvement is observed further delay is indicated.

Deeper lacerations of either the upper or lower eyelid may also involve the orbital septum, the tough fibrous tissue originating from the periosteum overlying the orbital rim. Clinically the physician is alerted to

orbital septum involvement if he notices orbital fat in the wound since the fat is usually kept posteriorly by the septum as shown in Figure 2. Involvement of the orbital septum may or may not require suturing, depending on the size and location of the laceration. It is imperative, however, that the surgeon not incorporate the orbital septum in the superficial sutures if the lagophthalmos seen in Figure 6 is to be avoided. In primary gaze this patient appears to have had a satisfactory repair; however, on downgaze the traumatized lid fails to follow the globe downward giving rise to severe asymmetry. This complication as well as its lower lid counterpart, ectropion, are among the most common problems seen following mismanaged eyelid trauma. Secondary repair necessitates z-plasty, a skin graft, or a combination of the two.

A meticulous search for imbedded foreign bodies both with preoperative X-rays and at the time of surgery is always indicated in patients with deeper eyelid lacerations. The risk/benefit ratio, however, must be carefully assessed prior to an attempt at removal. A case in point would be the patient that is known to have a glass foreign body deep within the orbital soft tissues. Removal would entail a significant

risk to vital intraorbital structures. With such an inert foreign material it may be wise to allow it to remain within the orbit.

Lacerations of the eyelid margin require a most exacting repair if one is to avoid gaping wound edges and notching of the eyelid margin. A popular technique today for repair of the eyelid margin is illustrated in Figure 7. This technique utilizes three sutures strategically placed in the eyelid margin after careful coaptation of the lacerated tarsus has been accomplished. The actual placement of the sutures and the proper suture tension are the most important factors in obtaining a satisfactory long-term result. Postoperative notching of the margin not only results in a poor appearance but may also give rise to functional disabilities. The patient with a notch in the lower eyelid margin, for example, may be plagued with a constant flow of tears running down the cheek instead of into the lacrimal drainage apparatus. Secondary repair of eyelid notching can be carried out with excellent success; however once again a proper primary repair will avoid the necessity of a second operation.

Any injuries in the area of the medial or lateral canthal tendons require preoperative assessment of the tendon. The unique configurations of the canthal angles must be reestablished prior to skin closure should the tendon be involved in the trauma if one is to avoid grotesque deformities.

The lacrimal canaliculi are found just below the eyelid margins in the medial canthal area. Any injury in this area, no matter how small and insignificant it may be, requires careful attention to associated involvement of the lacrimal drainage apparatus. Should the lacrimal system be involved, it should be repaired under the operating microscope utilizing one of a variety of techniques that best meets the needs of the particular patient. Failure to diagnose and manage lacrimal drainage injuries may result in a patient with chronic epiphora.

Secondary Repair

Secondary repair of eyelid trauma usually requires treatment of cicatricial changes that have occurred as a result of either the initial trauma or the subsequent primary surgical treatment. As has been mentioned previously, many secondary procedures can be avoided if the eyelid is repaired properly at the time of injury.

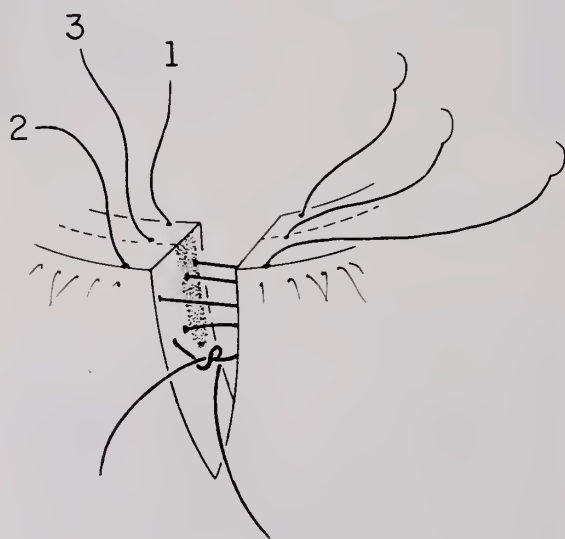


Fig. 7 (Carroll) A popular technique used in the repair of eyelid margin lacerations. Three 6-0 silk sutures are placed in the eyelid margin after the cut tarsal edges have been carefully aligned with 4-0 chromic suture.

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Rheumatology Corner

Central Nervous System Systemic Lupus Erythematosus

CHARLES H. McKENNA, M.D.*

NEUROPSYCHIATRIC ABNORMALITIES in patients with systemic lupus erythematosus are common except in one subset of patients, those with drug induced lupus syndromes where neuropsychiatric symptoms due to the disease process are for all practical purposes, never encountered.

Neuropsychiatric abnormalities due to drugs used in the treatment of lupus are more common than involvement of the central nervous system by the disease itself. These drugs and the syndromes they induce include the typical neuropsychiatric effects of salicylism, aseptic meningitis due to the newer nonsteroidal anti-inflammatory drugs, and most commonly of all, a variety of symptoms due to the administration of corticosteroids.

Psychic stimulation is the first symptom of corticosteroid treatment in the patient with lupus. Initially, this may not be perceived as unpleasant since in contrast to the preceding symptoms of illness, the stimulation may be viewed by the patient as part of a general sense of well being. Rapidly, however, forced thinking at bedtime, interruption of sleep during the night, evolution of the sleep deprivation syndrome and agitated depression may evolve. Treatment of these patients with conventional tranquilizers and sedatives usually aggravates the symptom complex. The use of tricyclic antidepressants, in modest dosages at bedtime, is usually more efficacious. Explanation of these symptoms to the patient before they occur aids in their early recognition and control.

Depending upon the patient's premorbid personality and the size and the duration of the corticosteroid dose, frank psychosis may evolve requiring the use of phenothiazine. Since Chlorpromazine in massive dosages has been associated with the development of a drug induced lupus syndrome, that particular agent is usually avoided and all of the phenothiazines are used with caution.

The differential diagnosis between central nervous system symptoms due to corticosteroids and those due to the underlying disease process, is an important and difficult one. The sickest patients with SLE are those most likely to be treated with corticosteroids in high

dosages. When psychiatric abnormalities arise, some guidelines for differential diagnosis exist.

If the patient has had systemic lupus erythematosus for more than two years without central nervous system involvement, neuropsychiatric abnormalities are not likely to be due to the disease. Patients developing SLE after midlife are less likely to have CNS involvement. Patients with CNS involvement are likely to have that involvement at the time of diagnosis and are less likely to have multisystem involvement than patients with multisystem involvement are likely to have CNS involvement.

The clinical manifestations of CNS involvement also suggest the etiology. Psychiatric abnormalities may be due to either corticosteroids or the disease whereas discreet focal lesions are most likely due to the disease process.

Imaging procedures such as computer assisted tomography and radioisotope brain scan are not particularly helpful. The latter technique especially may be abnormal in patients with SLE with no clinical neuropsychiatric involvement. No imaging procedure should be denied to the patient, however, if a reasonable presumption of a process unrelated to drug treatment or SLE exists since these patients are not immune to mass lesions of the central nervous system.

Cerebrospinal fluid examination is especially important if there is any suggestion of central nervous system infection such as recent onset of fever or dramatic rise in total serum hemolytic complement in the face of clinical deterioration. Cerebrospinal fluid levels of C4 may be depressed with CNS involvement but they may also be spuriously lowered due to errors in the technique of handling the specimen or normal in the face of active CNS SLE. Serial CSF C4 determinations are difficult to carry out in a single patient in any event.

Although there is no convincing evidence that corticosteroids or any other form of treatment is of predictable efficacy in central nervous system lupus, steroid treatment is rarely withheld in the presence of active or progressive CNS disease. When CNS symptoms occur during the course of high dose corticosteroid treatment, one strategy is to increase the dose of steroids on the order of doubling it and if

*Mayo Clinic, Rochester, Minnesota.

improvement does not rapidly occur, to abruptly return to the former dose, add phenothiazines and taper the steroid dose if possible.

Organic involvement of the central nervous system in lupus may be focal or discreet and occur at any level of the neuraxis. Seizures, long tract signs, cranial nerve abnormalities, peripheral neuropathy, cerebellar signs, scotomata, papilledema, chorea, meningitis and myelitis occur in that descending order of frequency.

The current popular hypothesis of the pathophysiology of CNS SLE is as follows: circulating immune complexes deposit in the walls of blood vessels of the cerebral circulation. Then, damage to the vessels permits access of antineuronal antibodies to the central nervous system. Binding of these antibodies to the cell surface produces disturbance of function with or without anatomical alteration of the cells. Other central nervous system syndromes can be better explained on the basis of inflammatory occlusion of small vessels. While this second mechanism probably occurs, it is invoked with a higher degree of frequency than is supported by the study of autopsy specimens.

The first hypothesis is not without problems. Although deposition of immune complexes in vessels of the choroid plexus has been unequivocally demon-

strated, complement activation at the site of deposition has not been shown. Similar deposits have been encountered in patients with lupus without CNS involvement and even in normal control patients. Of course, complement need not be involved in the vascular injury since if antineuronal antibodies are not present in the circulation, one would not expect disease to occur.

Anti-CNS antibodies are similar or identical to antilymphocytic antibodies. However, the prevalence of antilymphocytic antibodies among patients with lupus is far higher than the prevalence of clinical CNS SLE. Good assays for antineuronal antibodies have only recently been developed. Their significance is currently being investigated. Attempts to demonstrate antineuronal antibodies bound to CNS neural tissue have only been undertaken within the last year. Should further work support the above hypothesis, then study of these antibody systems may permit a greater understanding of CNS SLE and perhaps even methods for monitoring the response of patients to treatment protocols and the prediction of CNS involvement in patients with lupus with the possible consequence that techniques might be found to abort the involvement.

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Resuscitation, Stabilization and Transport of the Ill Newborn Infant

Part II: Stabilization and Transport

DANA E. JOHNSON, M.D.* and THEODORE R. THOMPSON, M.D.*

THE DECISION ON whether an ill newborn should remain at the delivering hospital or be transferred to a newborn intensive care unit (NICU) is often difficult and depends on the availability of 24-hour skilled nursing care, assisted ventilation, radiographic and laboratory support services, and on the newborn's requirement for surgical intervention.

We suggest the following reasons for obtaining consultation with personnel on a NICU for arranging transport of the newborn.

A. Respiratory Distress

1. RDS or Downes' score (1) over 4-5 (Table 1).
2. Arterial oxygen tension (PaO₂) under 60 mmHg with a fractional inspired oxygen concentration (FiO₂) of 0.4-0.5.
3. FiO₂ requirement of 0.4 or more to relieve cyanosis.
4. Arterial carbon dioxide tension (PaCO₂) over 55 mmHg.
5. Arterial pH below 7.25.
6. Apneic episodes.
7. Limited capacity to monitor FiO₂ and arterial blood gases (pH, PaCO₂, PaO₂).
8. Limited capacity to administer precise intraven-

ous fluids to premature infants or to infants during periods of respiratory distress.

- B. Prematurity (weight less than 1500 grams and/or gestational age under 31-32 weeks).
- C. Congenital heart defect.
- D. Surgical disorder including intestinal obstruction, gastroschisisomphalocele, tracheoesophageal fistula, diaphragmatic hernia, myelomeningocele.
- E. Perinatal asphyxia (particularly when the combined 1 and 5 minute Apgar score is below 6).
- F. Severe infection.
- G. Not doing well.

To arrange for the transport of a newborn infant, a NICU should be notified. After discussion of the perinatal history and of the maternal or infant's problems and status between health care professionals at the referring and referral hospital, a transport team will be immediately dispatched to your hospital.

Specific Aspects of Transport

At least two experienced and trained personnel in addition to appropriate equipment and drugs must be provided by the hospital assuming the responsibility of transport. The personnel should include a physician or physician extender (neonatal nurse clinician or specialist, neonatal transport nurse), and a nurse experienced in managing ill newborns. Successful transport of sick newborn infants requires experienced

TABLE 1

Downes' or RDS Score (1)

	0	1	2
Cyanosis	None	In room air	In 40% FiO ₂
Retractions	None	Mild	Severe
Grunting	None	Audible with stethoscope	Audible without stethoscope
Air Entry (crying)	Clear	Decreased or delayed	Barely audible
Respiratory Rate	Under 60	60-80	Over 80 or apneic episodes

Score ≥ 4 = Clinical RDS; monitor arterial blood gases
 ≥ 8 = Impending respiratory failure

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See Part I, February 1982 issue, page 103.

and skilled perinatal health care professionals to provide intensive care therapy during transport.

After the transport decision has been made, many physicians and nurses feel compelled to move the infant as rapidly as possible. We, as well as others²⁻⁸, have found that much better results are obtained if the baby is stabilized in the referring hospital while awaiting the arrival of the transport team from the NICU. Successful transport of a sick infant begins with resuscitation (discussed in the previous article) stabilization of the infant at the referring hospital, and provision of intensive care during transport.

Stabilization and Preparation of the Newborn Infant for Transport

Anticipation and prevention, or prompt detection and correction of the 5 Hs — *Hypothermia*, *Hypotension*, *Hypoglycemia*, *Hypoxemia*, and *Hypercarbia* plus *Acidosis* greatly reduces the infant's risk for suffering morbidity or mortality and improves the ultimate outcome of the ill newborn.

Hypothermia

Hypothermia significantly increases morbidity and mortality among newborn infants. It occurs most frequently in, and is most damaging to, those newborns who can least tolerate an additional stress: (1) The premature infant, (2) The asphyxiated infant, and (3) the infant with respiratory distress.

Prevention of hypothermia begins in the delivery room by maintaining the delivery room temperature above 70-72°F. Immediately after delivery, the newborn should be promptly dried and placed under a radiant heater which allows access to the baby, in a pre-warmed isollette, or in pre-warmed blankets. After completion of resuscitation efforts, the infant should be maintained in a neutral thermal environment. Axillary temperatures should be checked hourly until stable 97-98°F (36-36.5°C), and then every two hours. A newborn who has become hypothermic, {axillary temperature below 95-96.5°F (35.0-35.8°C)} should be rewarmed about 1°C per hour until the axillary temperature is 97-98°F (36-36.5°C).

Hypotension

Hypotension frequently develops in the infant born to a mother with third trimester bleeding and in infants with respiratory distress, perinatal asphyxia, intestinal obstruction (including gastroschisis and omphalocele), septicemia, and/or congestive heart failure. The hypotensive newborn has a flush blood pressure below 30 mmHg (premature) and 40 mmHg (full term) using a pediatric manometer cuff and standard hand anaeroid

gauge and bulb, and may have one or more of the following signs: (1) Poor capillary filling of blanched skin, (2) Weak thready pulses (tachycardia may or may not be present), (3) Cool, mottled extremities.

Hypotension in the newborn usually results from hypovolemia. Prompt treatment is necessary to prevent tissue hypoperfusion with resultant metabolic acidosis. Volume expansion using 10 cc/kg of five percent salt-poor albumin in Ringer's lactate, plasmanate, fresh frozen plasma or whole blood over 30-60 minutes is recommended. These doses may be repeated if necessary.

Venipuncture of an extremity or scalp vein is frequently difficult in hypotensive infants. Therefore, the umbilical vein must often be catheterized for vascular access. A 5Fr. end-hole catheter can be inserted one-two or seven-ten cm but never more than 12 cm. A catheter inserted four to six cm is usually in the hepatic portal system. After the catheter is inserted, it should be sutured in place. Hypertonic solutions, such as seven percent sodium bicarbonate (NaHCO₃ - one mEq/ml or 44 mEq/50ml), *should never* be infused unless diluted since hepatic necrosis may occur. In addition, the umbilical venous catheter *should never* be left open to air or an air embolism may result.

An umbilical artery catheter can also be used for infusion of glucose containing fluids and colloid. The catheter should be located between vertebral levels T6-T10 or between L3-L4. Once again, hypertonic solutions should be avoided. Finally, clysis should never be considered as a reasonable alternative route for infusing fluids to an infant since this method is associated with many complications and will not provide vascular expansion.

Hypoglycemia

Newborn infants who are at risk for developing hypoglycemia include the following: (1) Premature infants, (2) Intrauterine growth-retarded infants, (3) Infants of diabetic mothers, (4) Infants with respiratory distress, (5) Birth asphyxiated infants, (6) Cold-stressed infants, (7) Twins, triplets (8) Erythroblastotic infants, (9) Any infant in whom feedings are not well

TABLE 2

Arterial Blood Gas Values for Normal Newborn Infants and for Those in Respiratory Failure

	Normal	Respiratory Failure
pH	7.30-7.40	<7.20
PaCO ₂	31-35 torr	>60-70 torr
PaO ₂	63-87 torr	<45-50 torr in 60-100% O ₂
Negative Base Excess (Base Deficit)	-5 to 0 mEq/liter	>-5 mEq/liter

established by 16-24 hours of age.

The hypoglycemic newborn may be asymptomatic or may manifest apneic or cyanotic episodes, tremors, irritability, jitteriness, feeding difficulties, lethargy, hypotonia, and/or seizures.

Hypoglycemia during the first three days of life is defined as a serum glucose level under 35 mg% in the full-term infant and under 25 mg% in the premature infant. Thereafter, serum glucose levels should exceed 40 mg% regardless of gestational age or birth weight.

Dextrostix TM* is a convenient method to screen for hypoglycemia. The directions on the Dextrostix TM bottle must be followed precisely to obtain a reliable result. Infants at risk for developing hypoglycemia should have either Dextrostix TM estimations or quantitative serum glucose levels every two to four hours for the first 12 hours of life and every eight to 12 hours thereafter for 2-3 days. In addition, hypoglycemia can often be prevented in high-risk infants by the parenteral infusion of five or ten percent dextrose solutions.

Treatment of hypoglycemia consists of the following measures: (1) When possible, obtain a quantitative serum glucose level prior to therapy if Dextrostix is being used. (2) Infuse slowly 3-4 ml/kg of ten percent dextrose in water intravascularly (higher concentrations of glucose may be associated with hyperosmolality and intraventricular hemorrhage). (3) Maintain infusion of the ten percent dextrose in water solution at 3-5 ml/kg/hour.

Hypoxemia

The primary indication for administering oxygen to a newborn infant is hypoxemia defined as lack of sufficient oxygen content in the blood. Central cyanosis, may or may not be present. Hypoxemia, can lead to significant central nervous system damage or death. Over-oxygenation can cause retrolental fibroplasia in premature infants. Optimal oxygenation of a newborn lies between these two extremes: the arterial oxygen tension (PaO_2), should be maintained above 50 mmHg to prevent hypoxemia and cyanosis and below 100 mmHg to prevent hyperoxia.

The following methods are used to assess oxygenation in the newborn:

Arterial Blood Gases (pH, $PaCO_2$, PaO_2) – Preferred Method

Measurement of arterial blood gases in a newborn infant receiving supplemental oxygen permits the

optimal and rational use of oxygen. An arterial PaO_2 should be obtained on any newborn infant who receives oxygen for more than two hours or who has a RDS or Downes' score¹ of 4 or more. In addition, a PaO_2 should be obtained within 30 minutes of any change in FiO_2 or ventilatory assistance in the infant requiring such therapy. Arterial blood gases can be obtained from the umbilical artery (catheter required), radial artery, or temporal artery.

Observation of the Infant's Color

Clinical detection of cyanosis or a newborn's oxygen need should *only* be used for a short time when arterial blood gases are not available or obtainable, and while awaiting the arrival of the transport team. Central cyanosis may not appear until the PaO_2 is below 50 mmHg, the level where tissue oxygenation and lung perfusion may be impaired. Furthermore, hyperoxia cannot be detected clinically. Enough warmed and humidified oxygen should be delivered preferably by headbox, or via an aerosol mask or funnel paper cup placed next to the baby's face, until central cyanosis is relieved.

The infant with a RDS or Downes' score¹ of 5 or more, the infant who remains cyanotic in over 0.4-0.6 FiO_2 , or the infant who has a PaO_2 below 60 mmHg in over 0.6 FiO_2 often requires ventilatory assistance. CPAP may be useful in improving the PaO_2 for the infant who has spontaneous respiratory efforts and who has no carbon dioxide retention. In many instances, particularly if the infant has a pulmonary disorder and is under 12 hours of age, positive pressure ventilation should be considered.

Hypercarbia

Carbon dioxide retention commonly accompanies hypoxemia in the newborn with respiratory distress due to pulmonary disorders, upper airway obstruction, or central nervous system depression. Both hypercarbia and hypoxemia reflect inadequate pulmonary gas exchange to meet the metabolic needs of tissues. Correction of hypercarbia, as with severe hypoxemia, requires positive-pressure ventilation at a rate of 30 to 60 per minute utilizing an endotracheal tube or a tight-fitting face mask attached to a bag, or a mechanical ventilator. In addition, indications for instituting positive pressure ventilation to the newborn infant include the following conditions: (1) Apnea or slow, gasping respiratory efforts, (2) Shock, (3) Hypercarbia ($PaCO_2$ over 60-65 mmHg or $PaCO_2$ rising at a rate greater than 10 mmHg per hour) with pH below 7.25. (4) Hypoxemia (PaO_2 under 50-60 mmHg with a FiO_2 of 0.6 or more). (5) Persistent metabolic or

*Dextrostix TM, Ames Company, Division of Miles Laboratories, Inc., Elkhart, Indiana 46514.

respiratory acidosis with the arterial pH below 7.20. (6) RDS or Downes' score¹ of 8 or more.

Ventilatory support via an endotracheal tube provides the best ventilatory capability and it should be the only method employed to effectively manage hypercarbia and hypoxemia caused by the following clinical conditions: (1) Severe pulmonary disease. (2) Diaphragmatic Hernia. (3) Tracheoesophageal fistula.

Acidosis (Metabolic Respiratory)

Metabolic and respiratory acidosis frequently develops in the ill newborn. With metabolic acidosis, the pH is less than 7.30; the PaCO₂ is low, normal, or minimally elevated; and the base deficit by the Sigaard-Anderson nomogram⁹ (negative base excess) exceeds 5-6 mEq/liter. Treatment of metabolic acidosis is directed first to insuring adequate tissue oxygenation and perfusion, and secondly by infusion of diluted NaHCO₃. The amount of NaHCO₃ to initially infuse can be calculated using the following formula:

$$\text{Number of milliequivalents (mEq) of NaHCO}_3 = \frac{(\text{Bodyweight in kg}) \times (\text{Base deficit} \times 0.3)}{2}$$

The NaHCO₃ should be diluted at least 1:1 with sterile water to a concentration of 0.5 mEq/ml and infused intravascularly at a rate not to exceed 1 mEq/kg/min. Arterial blood gases should be obtained 30 minutes later to determine if additional therapy is needed. A total dose of 8-10 mEq NaHCO₃/kg/24 hours should NOT be exceeded except under dire circumstances to prevent central nervous system hemorrhage, hyperosmolality, hypernatremia, and congestive heart failure.

Treatment of respiratory acidosis is directed toward improving alveolar ventilation by positive pressure ventilation. Most newborn infants with severe respiratory distress will have both metabolic and respiratory acidosis requiring NaHCO₃ and ventilatory assistance.

General Measures

Table 3 summarizes recommended steps in resuscitation and stabilization of the ill newborn and outlines the other extremely important aspects of preparing the infant for transport.

Parents

Early parent-infant contact is vital to fostering parent-infant attachment. The parents must be given information by the referring hospital and transport team personnel regarding their infant's condition, the reasons for transport of their infant to a NICU and the

procedures and treatment that will be undertaken to diagnose and manage the problems of their infant.

Both parents should be encouraged to see and touch or hold their infant in order to relieve anxiety and to foster attachment. In particular, the parents of an extremely sick infant should have contact with their newborn, so that if the infant should die, the parents would be better able to begin their grieving process. Ongoing emotional support of the parents is required to alleviate their anxiety.

Parents must be encouraged to visit their child whenever possible and to participate in the feeding, bathing, holding and touching of their infant. Most NICUs have 24-hour per day, seven-day per week visiting hours. Breast feeding rooms are available for mothers whose infants are able to breast feed. Mothers, who desire to breast feed but are not yet able to breast feed their infant because of their child's condition, should be encouraged to collect their breast milk.

TABLE 3

Preparation and Stabilization of the Neonate Prior to Transport

1. Resuscitation (ABC's)
 - A. Establish Airway
 - B. Evaluate Breathing (may need assisted ventilation)
 - C. Maintain Circulation (cardiac massage)
 - D. Administer Drugs such as (NaHCO₃, albumin, glucose, epinephrine)
 - E. Maintain Environment (prevent heat loss)
2. Anticipate and prevent or promptly correct:
 - A. Hypothermia — neutral thermal environment
 - B. Hypotension — 5 percent albumin or plasmanate
 - C. Hypoglycemia — 10 percent dextrose in water I.V.
 - D. Hypoxemia — oxygen for cyanosis
 - E. Hypercarbia — ventilation
 - F. Acidosis — ventilation and/or NaHCO₃
3. Vitamin K₁ oxide (AquaMephyton), 1 mg I.M.
4. Gentle suctioning of the pharynx as needed
5. Maintain the neonate in supine position or with "good" lung uppermost and slightly hyperextend neck
6. Monitor vital signs including Downes' score every 15 to 60 minutes as indicated
7. Place NPO, empty stomach, place orogastric tube leaving it open to atmospheric pressure or attaching to suction
8. Record urine, meconium passage
9. Obtain 5 to 10 ml of maternal blood (clotted)
10. Obtain a maternal vaginal culture for Group B streptococci
11. Provide X-rays, xeroxed copies of maternal and newborn charts
12. Provide cord blood, placenta
13. Explain to parents why, by whom and to where their infant will be transported. (Written consent for transport will generally be obtained by a member of the transport team).
14. Provide continual emotional support to parents

Summary

The authors encourage physicians and nurses to consider the advantages of the coordinated, transfer/transport of high-risk pregnant women to perinatal high-risk or intensive care centers in clinical situations where the physician determines that the pregnant woman or her fetus requires care beyond the

capabilities of the referring hospital or if the newborn will require specialized care after delivery. However, when transport of a sick newborn is unavoidable, proper resuscitation and stabilization measures provide even the smallest viable infants with the opportunity for an excellent outcome.

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Minnesota Institutions Recently Accredited for CME

At its February 3, 1982 meeting, MMA Subcommittee on Accreditation granted continued full accreditation to *Riverview Hospital*, Crookston, *Waconia Ridgeview Hospital*, Waconia and *Unity Medical Center*, Fridley. Newly accredited was *Children's Hospital*, St. Paul and *Naeve Hospital*, Albert Lea. To date, the MMA accreditation program has accredited 34 institutions and organizations in Minnesota for continuing medical education.

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The committee for the Diehl Award given annually by the Minnesota Medical Alumni Association solicits nominations for this award from the physicians of Minnesota. The award is presented to one or more physicians meeting these four major criteria:

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Surgical Wound Infections at the Minneapolis Veterans Administration Medical Center

MARY OLSON, R.N.,* and MICHAEL L. SCHWARTZ, M.D.†

Surgical wound infections increase postoperative morbidity and cost to the patient and hospital. Wound surveillance by a trained Nurse Epidemiologist reduced the wound infection rate at the Minneapolis Veterans Administration Medical Center by 43.5% over a three year period with a savings to the hospital and taxpayers of \$220,800.

THE CURRENT RECOMMENDATION of the Joint Commission of Hospital Accreditations is that a full time nurse epidemiologist be responsible for surveying nosocomial infections.¹ Beginning in 1977, a nurse epidemiologist performed surgical wound surveillance at the Minneapolis Veterans Administration Medical Center. This is a report of the results of wound surveillance by the nurse epidemiologist from 1977-1979.

Methods

The Minneapolis Veterans Administration Medical Center is an 860 bed hospital which contains 364 surgical beds on seven wards. There are ten operating rooms and 4500 operations are performed annually.

A single nurse epidemiologist (MO) performs surgical wound surveillance on the entire hospital with the aid of ward nurses and the bacteriology laboratory. The Nurse Epidemiologist reviews the microbiology culture reports and visits each surgical ward daily. She directly questions each nurse caring for surgical patients about the status of surgical wounds. Any wound that is inflamed, draining, open, or questionable is examined by the Nurse Epidemiologist. Both the nurse epidemiologist and the ward nurse have the authority to culture wounds. Gram smears and cultures are done on any suspicious wound. Obviously the system depends on the ward nurses' ability to recognize wound problems and their rapport with the nurse epidemiologist. This rapport is developed by the nurse epidemiologist during inservice and orientation teaching sessions of staff nurses.

The Nurse Epidemiologist examines all patients with a positive culture. This includes both in patient and outpatient cultures. She keeps a record of all

draining wounds, nosocomial or community acquired. The operative schedule is checked daily and she classifies cases into the proper wound classification. The time required for the nurse epidemiologist to perform wound surveillance averages slightly less than 20 hours per week.

A surgical wound is considered infected if it drains pus with or without a positive culture.^{2-4, 6-8, 10, 11} Any wound that is diagnosed as infected by the attending physician or the nurse epidemiologist is reported as an infected wound. Cellulitis without purulent drainage and stitch abscesses not involving the main incision are not counted as wound infections. If suppuration occurs within 30 days of the operation it is considered as a wound infection. Abscesses which do not drain out of the incision are counted separately as abscesses but not as wound infections.

Gram stains are done on all wound cultures. Any wound that is diagnosed by the attending physician as infected is reported as infected. Any wound the Nurse Epidemiologist decides is infected, using the criteria of pus at the incisional site and personally inspecting the incision, is placed on the infection report.

All operations are classified into clean, clean-contaminated, and contaminated according to the Committee on Control of Surgical Infections of the American College of Surgeons.² This classification is made by the operating room nurse and later checked by the Nurse Epidemiologist. Positive intra-operative cultures are used to correct the classification. Class I, clean wound, is defined as a non-traumatic wound in which no inflammation was encountered, no break in technique occurred and the respiratory, alimentary and genito-urinary tracts were not entered. Class II, clean-contaminated wound, is a non-traumatic wound in which a minor break in technique occurred or in which the gastrointestinal, genito-urinary or respira-

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tory tracts were entered without significant spillage. This category includes transection of the appendix or cystic duct in the absence of acute inflammation and entrance into the biliary or genito-urinary tracts in the absence of infected bile or urine. Hysterectomy is also included in this category. Class III, contaminated wound, is a fresh traumatic wound from a relatively clean source or an operative wound in which there is a major break in technique, gross spillage from the gastro-intestinal tract or entrance into the genito-urinary or biliary tracts in the presence of infected urine or bile. This includes incisions encountering acute non-purulent inflammation. Also included in this contaminated category are dirty wounds, such as traumatic wounds from a dirty source or with delayed treatment, fecal contamination, foreign body or when a devitalized viscus or pus from any source is encountered.

The Nurse Epidemiologist also attends surgical complications conferences. This is to help detect infections that were not found by the previously mentioned means and also affords an opportunity for the surgical faculty and house-staff to see the nurse epidemiologist as a member of the surgical team, who will impartially record infections and who shares their interest in preventing them. The Nurse Epidemiologist prepares a monthly surgical wound infection report which is sent to all staff surgeons, operating room supervisor, chief nurse, chief of staff, head of infection control committee, and head of anesthesia. The wound infection rate is discussed in detail at surgical complications conference and at the Infection Control Committee Meeting. Each infection is discussed in terms of contributing factors and methods of prevention. Periodic reports are presented in a tabular and graphic fashion illustrating the infection rates of each particular surgical service.

Results

The overall results from three years of surgery are listed in Table 1. There were 13,600 operations

TABLE 1
Total Number of Operations and Wound Infections at the VAMC 1977-1979

	Operations	Infections	Infection Rate %
1977	4704	188	4.0%
1978	4610	120	2.60%*
1979	4286	97	2.26%*
	13,600	405	2.98%

*P < .001 by Chi squared compared to 1977.

performed with a total of 405 wound infections. This represents a wound infection rate of 2.98%. The wound infection rate decreased from 4.00% in 1977 to 2.26% in 1979 ($p < .001$). There was a 43.5% reduction in infection rate from 1977 to 1979. Class I infections were reduced from 2.2% in 1977 to 1.8% in 1979 (Figure 1). This is an 18.2% reduction in wound infections. Class II-clean contaminated infections decreased from 4.7% in 1977 to 1.4% in 1979 ($P < .001$). This is a 70.2% reduction in the rate of infection (Figure 2). Class III-contaminated wound infections decreased in the two year interval from 12.8% to 8.5%, a 33.6% reduction in infection rate ($P < .05$).

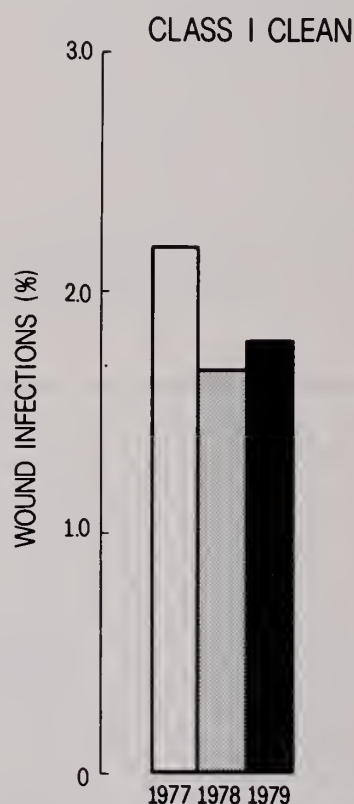


Fig. 1 — Wound infection rate for all clean class I surgical cases at the VAMC.

The Class I-clean operations performed annually at the Minneapolis Veterans Administration Medical Center are graphed on Figure 3. The utilization of the hospital peaks during the winter and drops off markedly in the spring. The number of clean usually elective cases then begins to increase in late summer and early fall to decrease again with winter. The infection rate however does not change appreciably from month to month. Varying from a low of 1.5% to a high of 2.5%. Class II-clean contaminated and Class III-contaminated operations tend to be more evenly distributed throughout the year and likewise infection

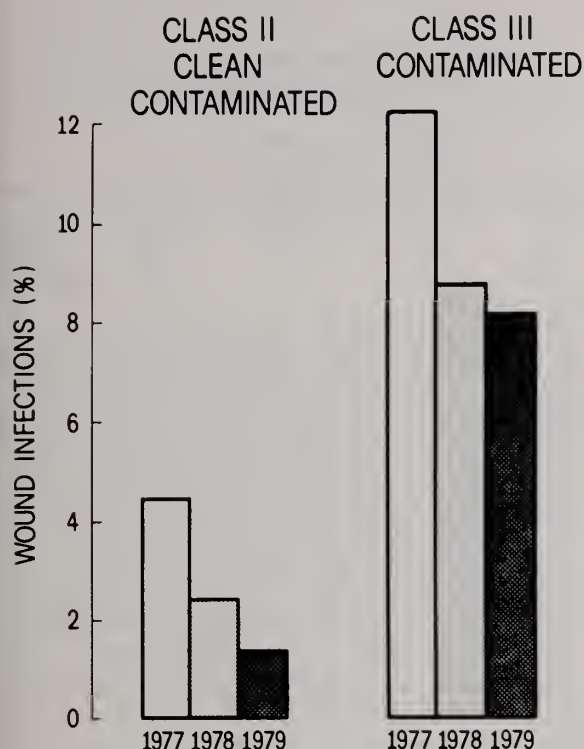


Fig. 2 — Wound infection rate for all Class II and Class III cases at the VAMC.

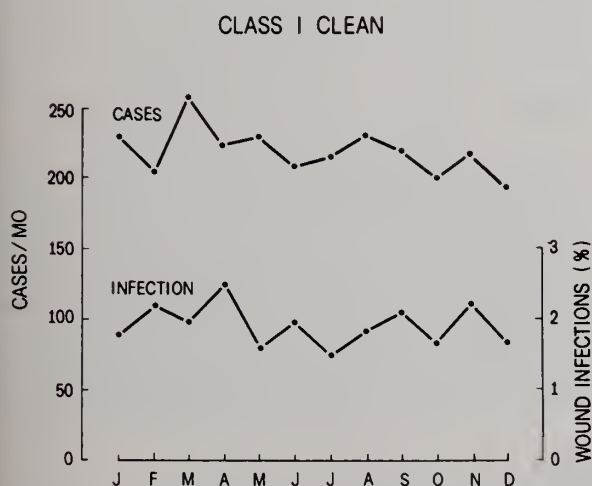


Fig. 3 — Average infection rate and case load per month 1977-1979 at VAMC.

rates do not vary with month or season.

There were several discrete occurrences of infection which were investigated by the Nurse Epidemiologist. One illustrative case is an example in which two services were performing the same operation. Service A performed 34 operations over two years with no

infections. Service B performed the same procedure 55 times with five infections (Table 2). This came to the attention of the Nurse Epidemiologist when service B had three infections within a short time interval. The Nurse Epidemiologist then investigated the difference between the services and found that Service A used a vigorous pre-operative prep, including three ten-minute scrubs to the site of the proposed incision on the day before surgery. Service B did not order any preoperative scrubs. Minor differences in draping in the operating room were also noted. No prophylactic antibiotics were used in either group. When the differences in technique were called to their attention, service B changed to the preoperative method used by service A and had no infections in the subsequent year.

TABLE 2

During the Same Time Period both Services were Performing Same Operation with Marked Difference in Wound Infection Rate

	Operations	# of Infections	Infection rate (%)
Service A	34	0	0
Service B	55	5	9*

*0.05 < P < 0.10 by Chi square

In investigating the high infection rate on the vascular surgery service, which was 6%, it was noted that within three months there were seven infections. Careful investigation of these seven infections revealed that three patients had no pre-operative scrub orders, two patients had pre-operative scrubs ordered but not done and for one patient the preoperative scrub was ordered incorrectly and performed incorrectly. Of the seven infections, six had pre-operative scrubs either not ordered or performed incorrectly. Some patients also had shaves done on the day prior to surgery. Correction of the pre-operative preparation by standardizing the prep orders on the ward and reinforcing the policy of not shaving patients until immediately prior to surgery resulted in the reduction of the infection rate. The following 6 months Vascular Surgery had a wound infection rate of 1.9%.

A third example of the role of the Nurse Epidemiologist was revealed in Class III — contaminated wounds. She reviewed the charts of 53 wound infections and found that 27 of 53 (51%) were general surgery patients who had primary closures at the time of surgery. This information was given to all staff surgeons and was discussed with the residents. The following year, 1978, only seven of 38 (18%) were general surgery patients with primary closure. Reducing the number of primary wound closures to zero is probably more responsible for the reduction in wound

infection rate in contaminated cases than any other factor.³

Discussion

The Minneapolis Veterans Administration Medical Center has a strong affiliation with the University of Minnesota Hospital. The surgical staff as well as residents are completely integrated with the University of Minnesota teaching program. More than 90% of the surgery performed in this hospital is performed by the surgical residents. The surgical wound infection rate at the Minneapolis V.A. Medical Center of 2.98% compares favorably with the series in the present literature^{4,5,6} (Table 3). Listed are the largest series in the literature. Over 80,000 wounds were collected with an overall infection rate of 4.8 to 7.5% compared to 2.98% in the present series. Cruse⁴ and Howard⁶ used the same definition of wound infection as pus at the incisional site. Edwards⁵ used fever and warmth in addition to purulent drainage to diagnose a wound infection. Therefore, these series are comparable to the present one in terms of definition of a wound infection.

TABLE 4
Actual and Predicted Surgical Wound Infections and Savings Realized by Reduction in Wound Infections

	Projected Wound Infections	Actual Wound Infections	Difference	Savings
1977		188		
1978	184	120	64	\$102,400
1979	171	97	74	118,400
Total			138	\$220,800

specific problems.⁹ In the Progress Report on Analyses of the Efficacy of Infection Surveillance and Control Programs from the SENIC Project it was stated emphatically that high surveillance alone, without control methods, has been shown to reduce the surgical wound infection rate.¹² Presumably, if surgeons are presented with the data on wound infections, they will take the appropriate steps to reduce the infection rate.

Based on an infection rate of 4.00% in 1977, one could predict the number of wound infections in 1978 at 184 and the number in 1979 at 171 (Table 4). The actual infection rate was 43.5% less than predicted. In

TABLE 3
Incidence of Surgical Wound Infections

Author	Institution	Year	Number Total Patients	Wound Infection Rate (%)			Total
				Class I	Class II	Class III	
Cruze ⁴	Foot Hills Hospital Alberta, Canada	1973	23,649	1.8	8.9	21.5-38.3	4.8
Edwards ⁵	Rush-Presbyterian St. Lukes, Chicago	1976	40,923	4.2-4.7	6.0	10.1	4.8
National Research Council ⁶	Multi Institutional	1964	15,541	5.1	10.8	16.2-28.5	7.5
Olson	Minneapolis V.A. Medical Center	1979	13,600	1.9	2.9	10.0	2.98

A decrease in the wound infection rate during a period of surveillance has been noted by others^{4,7,8}. Three definite instances of the Nurse Epidemiologist locating and eradicating infection were mentioned. In addition, the presence of an impartial observer, who will locate and report wound infections is a stimulus to surgeons, and ward and OR personnel alike to avoid infections. This additional incentive to reduce infections may have a greater effect than the elimination of

actual numbers, 64 patients less than predicted had infections in 1978 and 74 fewer in 1979. If the average hospital stay is prolonged by 9 days because of wound infection,⁴ and the average cost per day is \$200,¹³ then this represents a savings of \$220,800.00 for the years 1978 and 1979. The cost of employing a full time nurse epidemiologist is around \$20,000 annually. Therefore, the net savings was approximately \$100,000 per year.

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Minnesota Medical Association

from

Division of Socio-Economic Affairs

Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Charles W. Wiger, Director, Department of Legislative Affairs

Department of Legislative Affairs

Legislators Adopt MMA Positions on Certificate of Need Pre-School Screening

In the closing minutes of the 1982 regular session the Minnesota Legislature approved the cornerstones of the MMA legislative program. On overwhelming votes certificate of need was repealed and the pre-school screening program reduced in size and scope.

The mandatory certificate of need process will expire on March 15, 1984. The MMA vigorously supported immediate repeal but concern over loss of federal funds plus pressure from some hospitals prompted the legislators to adopt the future date.

Effective immediately, however, certificates of need will not be required on: (1) purchase, lease or acquisition of diagnostic and therapeutic equipment which requires a capital expenditure of \$400,000 or less, (2) any expansion of the scope or type of an existing health service, and (3) construction or remodeling unless the capital expenditure exceeds \$600,000.

The trade-off on repeal of certificate of need results in authority for the Commissioner of Health to encourage price publication and reporting by hospitals and health providers in an effort to foster competition. The bill clearly states that voluntary price disclosure is preferred but if, in a report to the Legislature by March 1, 1983, the Commissioner determines that the voluntary efforts by a provider group have not made satisfactory progress a mandatory system is activated. The mandatory system requires the Commissioner to develop lists of specific procedures and services for each provider group. The lists must be posted in the clinic or a notice of the availability of the lists posted.

The regional health planning system is retained until a report is made to the legislature by January 2, 1983. Earlier versions of the bill created a single state planning process, repealing the authorization of regional offices. Legislators appeared reluctant to repeal certificate of need and eliminate regional health planning in one major effort.

The mandatory components of the pre-school screening program were significantly reduced in the school aids legislation. The laboratory component, physical assessment, nutrition and dental assessment were all deleted. Funding was cut to reflect the scaled down program which now contains these basic components: vision and hearing screens, a preview of health history and immunization status, developmental assessment, and recordation of height, weight and blood pressure. The maximum allotment to each school district is now \$15.00 per pupil per year. School districts may still offer, laboratory testing, physical assessment and nutritional and dental assessment, but may not use state money for these services.

Department of Medical Services and Research

MMA Survey on Women Physicians

Do you know how many women are licensed to practice medicine in Minnesota? Do you know what specialty is chosen most often by women physicians? How many of Minnesota's licensed female physicians belong to the MMA? The answers to these questions and other questions never have been sought by the Minnesota State Board of Medical Examiners nor the Minnesota Medical Association.

The first major project of MMA's new Committee of Women Physicians (created by the MMA Board of Trustees in June, 1981) was to design a comprehensive survey to gather data on the women physicians

DIVISION OF SOCIO-ECONOMIC AFFAIRS

who practice in Minnesota. Through a tedious process, Maxine O. Nelson, M.D., a retired family practice physician, developed a mailing list of 987 women physicians who are licensed to practice medicine in Minnesota. On March 12, 1982, the survey, designed by the MMA Committee of Women Physicians, was mailed to those women. Responses are expected to be returned by early April to the MMA.

The responses will be analyzed in mid-April. Ellen Stubbs, M.D., Chairperson of the Committee of Women Physicians, will then summarize the collective results in a report to the MMA House of Delegates for the May 26-28 Annual Meeting.

It is hoped that the survey will convey a message of caring to all women who receive it. The MMA is interested in who the women physicians are in Minnesota, what they are doing, whether or not they are managing both a career and a family, and what issues are of concern to them. Organized medicine has traditionally been a stronghold of male professional and social activity, because the great majority of persons obtaining medical degrees were men. Today, approximately one fourth of the students graduating from the University of Minnesota Medical School are female. There must be room in organized medicine for their voices, too.

Cover Photograph

"Showy Lady Slipper"

Dr. Austin H. Doren and his wife live on the Big Fork River, some 16 miles from the Littlefork Municipal Hospital, and as such have access to other areas that go with the Showy Lady Slipper, the Yellow Lady Slipper, and the other three or four species that grow in this area. Occurring in large fields around old home sites, the Lady Slippers are extremely attractive when they are in full height of color.

Dr. Doren migrated to Northern Minnesota from South Arkansas some twelve years ago and has been in general practice in Littlefork since that time. In addition to his practice, he is the Medical Director of the Littlefork Municipal Hospital and Continued Care Facility in Littlefork.

His hobbies are fishing, photography and wood working.

MINNESOTA MEDICINE COVERS

Dr. Bruce Nydahl, Cover Editor, and the Board of Editors of MINNESOTA MEDICINE invite physicians to send in their 35 mm slides for possible covers for MINNESOTA MEDICINE. Scenic slides of Minnesota representing the seasons or slides having artistic merit are invited. However, we encourage you to send in slides of other areas or countries.

Identify each slide with your name and address and send the slides to MINNESOTA MEDICINE, 2221 University Avenue S.E., Suite 400, Minneapolis 55414.

Summer scenes are needed particularly at the present time.

University of Minnesota Medical School Reunion

Saturday, June 5, 1982 a reunion for the University of Minnesota Medical School graduating classes of 1942, 1947, 1952, 1957, 1962, 1967, and 1972 will be held in Minneapolis. A one day seminar "New Horizons in Minnesota Medicine" will be featured at the University of Minnesota Health Sciences Complex. This program will meet the CME criteria for 5 credit hours in Category I. The keynote speaker will be John L. McKelvey, M.D., Professor Emeritus and Head of the Department of Obstetrics and Gynecology from 1938 to 1967.

Inquiries can be directed to K. A. Prem, M.D., President, Medical Alumni Society, Box 395, University of Minnesota Hospitals, Minneapolis Minnesota, 55455.

Minnesota Medical Association

1982 MMA ANNUAL MEETING

May 26-28, 1982

(Wednesday-Friday)

Radisson South Hotel, Bloomington

Highlights of the Month

Each month this page will highlight a different aspect of the 1982 Scientific Program and one or more of the special events planned in conjunction with the Annual Meeting.

Scientific Program: Thursday and Friday, May 27-28

Several workshops offering **hands-on experience** have been included in the 1982 Scientific Program. In addition to presenting basic information about microcomputers and their applications to physicians' needs, the session on **"Microcomputer Use for the Physician"** (Thursday afternoon) will feature demonstrator microcomputers which participants may practice operating. Vendors of hardware and software, as well as physicians who have used microcomputers, will be available for questions and answers.

Participants in **"Indications for and Practical Applications of Casts and Splints"** (Thursday afternoon) will practice applying short arm and short leg casts on each other. **"Neonatal Resuscitation"** (Thursday afternoon) will offer an opportunity to practice infant resuscitation. Certification in Basic Life Support (CPR) can be obtained through successful completion of **"Basic Life Support for Physicians"** (Friday afternoon). This course will consist of lectures designed specifically for physicians, a written test and performance testing with manikins.

All four of the above courses have **limited attendance**. Register early!

Special Events: Midday Programs, Thursday-Friday, May 27-28

Physicians (and spouses) interested in international health and/or contemplating overseas service are cordially invited to attend the **Minnesota International Health Volunteers'** luncheon on Thursday, May 27, at 12:00 noon. Registration forms have been placed in the Annual Meeting registration brochure. The cost per person is \$10.

The **MMA Committee on Residents and Medical Students** will sponsor a special program at 12:15 p.m. on Thursday, May 27. A fascinating talk on **"How to Succeed at Chemotherapy Without Really Trying"** will be presented by **Charles G. Moertel, M.D.**, Mayo Clinic. This lecture is open to all interested physicians. The program will also include a short presentation of activities and services for medical students and residents.

The **MMA Committee of Women Physicians and the Alpha Epsilon Iota Foundation** are sponsoring a luncheon on Friday, May 28, at 11:00 a.m. for all interested women physicians and medical students. Paula Clayton, M.D., Professor and Head, Department of Psychiatry, University of Minnesota Medical School, will speak on the growing problem of "Depression in Professional Women." A report on the MMA's survey of women physicians will also be discussed. Registration forms have been placed in the Annual Meeting registration brochure. The cost per person is \$10 (\$5 for residents and medical students).

For further information on the Annual Meeting, contact:

Department of CME & Program Services
Suite 400, 2221 University Avenue SE
Minneapolis, Minnesota 55414
612/378-1875

Minnesota Medical Association 1982 Annual Meeting

Wednesday - Friday, May 26 - 28, Radisson South Hotel, Bloomington

SCIENTIFIC PROGRAM

THURSDAY, MAY 27, 1982

Plenary Sessions — Titles and Speakers

8:30 a.m. - 11:45 a.m. (consecutive sessions)

BREAST CANCER TODAY

B. J. Kennedy, M.D., Minneapolis

QUALITY OF CARE —

TWO SOLUTIONS FOR THE 1980's

Quality Assurance for Ambulatory Patients

Paul Batalden, M.D., Minneapolis

Paul O'Connor, Minneapolis

Computers and Medical Practice

Felix McParland, M.D., Minneapolis

Robert Ulstrom, M.D., Minneapolis

Breakout Sessions — Titles and Course Directors

1:30 p.m. - 4:30 p.m. (concurrent sessions)

A. THE PSYCHOSOCIAL PROBLEMS OF CANCER PATIENTS AND THEIR FAMILIES

Alexander Levitan, M.D., Minneapolis

***B. MICROCOMPUTER USE FOR THE PHYSICIAN**

John Glaser, Minneapolis

John Sandness, M.D., Cleveland, Ohio

C. THE EFFECTS OF HYPERTENSION ON THE HEART

Brian Campion, M.D., St. Paul

D. YOUTH SPORTS — A MEDICAL PERSPECTIVE

Richard Aadalen, M.D., Minneapolis

***E. INDICATIONS FOR AND PRACTICAL APPLICATIONS OF CASTS AND SPLINTS**

John Wilson, M.D., Minneapolis

F. BLOOD BANK ROUND TABLES

Paul Alexander, M.D., St. Paul

G. A DOCTOR'S DAY IN COURT: ANATOMY OF A MEDICAL MALPRACTICE TRIAL

Jo Anderson, M.D., Le Sueur

***H. NEONATAL RESUSCITATION**

John Fangman, M.D., Minneapolis

Eric Knox, M.D., Minneapolis

(Will begin at **1:00 p.m.** instead of 1:30 p.m.)

FRIDAY, MAY 28, 1982

Plenary Sessions — Titles and Speakers

8:30 a.m. - 10:45 a.m. (consecutive sessions)

THE PHARMACOLOGICAL ASPECTS OF HYPERTENSION

Morris Davidman, M.D., Minneapolis

Ray W. Gifford, M.D., Cleveland, Ohio

Richard Weinshilboum, M.D., Rochester

FITNESS THROUGH ENDURANCE ATHLETICS

Fred Bovet, M.D., Rochester

Lowell Lutter, M.D., St. Paul

David Neidhart, M.D., Mankato

Breakout Sessions — Titles and Course Directors

1:00 p.m. - 4:00 p.m. (concurrent sessions)

I. COMPLICATIONS IN THE MANAGEMENT OF HYPERTENSION

Alexander Schirger, M.D., Rochester

J. THE PHYSICIAN'S ROLE IN AMATEUR ATHLETICS

Lowell Lutter, M.D., St. Paul

K. NUTRITION IN CANCER PATIENTS

Athanasios Theologides, M.D., Minneapolis

L. THE EFFECTIVE USE OF CLINICAL RESOURCES — THE DOCTOR'S CHOICE

Terry Crowson, M.D., St. Paul

M. UPDATE IN DIAGNOSIS AND TREATMENT OF CHEMICAL DEPENDENCIES —

GOOD NEWS AT LAST

Samuel Hall, M.D., St. Paul

N. SLEEP AND ITS DISORDERS

Mark Mahowald, M.D., Minneapolis

***O. BASIC LIFE SUPPORT FOR PHYSICIANS (CPR)**

Harold Panuska, D.D.S., Minneapolis

(Will begin at **11:15 a.m.** instead of 1:00 p.m.; will include one-hour break for lunch.)

* Includes hands-on demonstration; limited attendance.

FOR FURTHER INFORMATION CALL OR WRITE:

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As an organization accredited for continuing medical education, the Minnesota Medical Association verifies that these continuing medical education activities meet the criteria for credit on an hour-for-hour basis in Category 1 for the Physician's Recognition Award of the AMA and for the relicensure requirements of the Minnesota State Board of Medical Examiners.

This program has been reviewed and found acceptable for the Prescribed credit on an hour-for-hour basis by the American Academy of Family Physicians.

OTHER ACTIVITIES:

Athletic Tournaments
President's Reception and Dinner at
Old Log Theater
Baseball Game at Domed Stadium —
Reserved Seats and Transportation
Physicians' Art Show
Exhibits
Specialty Society Meetings
Luncheon for Women Physicians
Resident/Medical Student Activity
MMA House of Delegates
Luncheon for International Health Volunteers

FEES:

MMA Members - \$40.00
Non-Members - \$90.00
(Exempt if sponsored by MMA member)
Residents and Medical Students - Exempt

1982 MMA Scientific Program — May 27-28

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Space limitations and CME accreditation require that you register for **specific breakout sessions**.

Please indicate course letters.

Thurs.-(A.-H.) 1st choice _____ 2nd _____ 3rd _____

Fri. - (I.-O.) 1st choice _____ 2nd _____ 3rd _____

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(please print sponsor's name)

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Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

April, 1982

14-16 Spring Refresher; Minnesota Academy of Family Physicians; Radisson South Hotel, Bloomington; CONTACT Chari Konerza, Suite 426, 2221 Univ. Ave. S.E., Mpls., MN 55414, 612/623-9559.

16-17 5th Annual Update in Practical Cardiology; Abbott Northwestern Hospital; CONTACT Robert Blomberg, M.D., 2727 Chicago Ave., Mpls., MN 55407, 612/874-4211.

17 Minnesota Society of Anesthesiologists; Hilton Inn, Mpls.; CONTACT David Byer, M.D., 200 1st St. S.W., Rochester, MN 55905.

17 Annual Pediatric Challenges for Primary Care Physicians; Minneapolis Children's Health Center; Children's Health Center; CONTACT Daniel P. Kohen, M.D., 2525 Chicago Ave. S., Mpls., MN 55404, 612/874-6238.

19-20 Surgical Correction in Aphakia; U of M Medical School, Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

20 Medical Chest; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

22-23 Pediatric Days; Mayo Clinic/Mayo Foundation; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

23 Problems in Office Orthopedics; Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J.G. Brueggemann, M.D., 400 E. 3rd St., Duluth, MN 55805, 218/722-8364.

23 Minnesota Surgical Society; Mayo Clinic, 200 1st St. S.W., Rochester, MN 55905; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-May 1 Food Allergies; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

29-30 Advanced Cardiac Life Support; Mercy Medical Center; MMC; CONTACT Gene Arel, Mercy Medical Center, 612/427-2200 Ext. 2365.

30-May 1 Ophthalmic Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-May 1 Dermatology Reviews; Mayo Foundation Mayo Clinic; CONTACT Mayo Clinic, 200 1st St. S.E., Rochester, MN 55905, 507/284-2085.

May, 1982

1 Advances in the Therapy of Diabetes Mellitus; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700 ext. 1117.

1 Semi-Annual Research Conference; St. Paul-Ramsey Medical Center; Ramada Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

3-5 International Conference on Tissue Specific Antigens; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-7 Practice of Internal Medicine; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

5-6 Human Aging V; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

6 Spring Symposium; Rice Memorial Hospital, Willmar; Rice Memorial Hospital; CONTACT Steven Honebrink, M.D., 301 Becker Ave., S.W., Willmar, MN 56201, 612/235-4543.

7 Waste Anesthetic Agents; Recognition, Evaluation, Control; Midwest Center for Occupational Health and Safety; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

7 Medical Directors Spring Meeting; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-14 Family Practice Review; U of M Medical School; Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

13-15 12th Annual Meeting; Great Plains Organization for Perinatal Health Care; Radisson South Hotel, Mpls.; CONTACT Kimberly Bardis, Regional Coordinator, GPO, 2nd Floor, 3036 University Ave. S.E., Mpls., MN 55414, 612/373-5718.

19 Cardiology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

19-21 Current Concepts in Radiation Therapy; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 State-of-the-Art in Clinical Anesthesiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

May 1982 (Continued)

24-26 Topics and Advances in Pediatrics; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

26-28 Biotechnology Symposium; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-28 MMA SCIENTIFIC PROGRAM; Radisson South Hotel, Mpls.; CONTACT Teresa L. Rogstad, 2221 University Ave. S.E., Suite 400, Mpls., MN 55414, 612/378-1875.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

2-4 Coronary Heart Disease Workshop; U of M Medical School; Spring Hill Center, Wayzata; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-5 Strategies and Controversies in Primary Care Medicine; St. Paul-Ramsey Medical Center and U of M Medical School; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

9-11 Musculoskeletal Tumors; U of M Medical School; Sheraton-Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

11-12 Clinical Hypnosis; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

14-16 Advances in Vascular Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Psychiatry; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

29-30 Disabled Adolescent; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

July, 1982

9-10 Malnutrition: The Clinician's Role (Women in Medicine Conference); U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21 Orthopedics; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

August, 1982

17 Ob/Gyn; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

25 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

September, 1982

1-3 Annual Ob-Gyn Seminar; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-11 Controversies in Medicine; St. Louis Park Medical Center; SLPAC; CONTACT Elaine Anderson, SLPAC, 5000 West 39th St., Mpls., MN 55416, 612/927-3350.

13-17 Skeletal Radiology (Annual Radiology course); U of M Medical School; West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

15-17 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health and Safety; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

17 & 18 Current Clinical Cardiology; United Hospitals; Radisson Plaza, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith, St. Paul, MN 55102, 612/298-8558.

23-25 Trauma Seminar; U of M Medical School; Hennepin County Medical Center; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

24 Annual Meeting; Northwestern Pediatric Society; Chanhassen Dinner Theatre; CONTACT Stephen Boros, M.D., 612/298-8864.

29-30 Cardiovascular Disease — 1982; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-October 2 Comprehensive Review of Infectious Diseases; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

ALLERGY AND ENT

specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

NEUROLOGIST AND PSYCHIATRIST to join a multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality benefits. Send curriculum vitae and references to P. K. Olson, M.D., 101 Willmar Avenue, Willmar, MN 56201.

WANTED: GP to join rural practice located 30 miles from Grand Forks, N.Dak. Call (218) 745-4151. W.A. Pinsonneault, MD, P.O. Box 107, Warren, MN 56762.

OPPORTUNITY FOR QUALIFIED physician in Otolaryngology and Orthopedic Medicine. The clinic is also recruiting for a country family physician (2) for an outlying branch clinic in New Richland, Minnesota and Alden, Minnesota. The Albert Lea Clinic, P. A., is a 17 man multispecialty group in primary and secondary care fields. Financial rewards are exceptional and practice challenges very attractive. Negotiated top salary first year. Senior physician participation beginning at the end of the first year and incentive income distribution plan. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. This is a choice practice in an exceptional place to live. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

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GROUP HEALTH PLAN — MINNEAPOLIS/SAINT PAUL — offers opportunities for full range family practice in suburban setting with five family physicians and positions in multispecialty clinics with no ob/gyn. Comprehensive fringe benefits, excellent facilities, competitive earnings. Contact: Paul Brat, M.D., Medical Director, Group Health Plan, 2500 Como Avenue, Saint Paul, Minnesota 55108. An equal opportunity employer.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

FAMILY PHYSICIAN to join 2 physicians and 2 nurse practitioners in rural West Central Minnesota resort community of 8-10,000, serving 31-bed hospital and 74-bed nursing home. RPAP clinical site. Seven U of M specialists visiting monthly through rural health co-op. Contact (call or send C.V.): Robert Ross, M.D. or Robert Knip, M.D., Northside Medical Center or Richard Slieter, Ortonville Area Health Services — Ortonville, Minnesota 56278 (Phone 612/839-2525).

FOR RENT — Remote modern lake cabin. Excellent x-c skiing or unique summer vacation. Burntside Lake, Ely Minn. Call 612-437-2679.

GENERAL SURGEON to join 11 member primary care group. 8 Family Physicians, 2 Internists and 1 General Surgeon. Recently remodeled and expanded clinic facility, 6 blocks from modern, well equipped 99 bed hospital. Rural Community 45 minutes south of the Metro area on 35-W. Salary guarantee first year. Contact: Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd. 924 N.E. 1st Street, Faribault, Minnesota 55021.

WANTED: Family practitioner, internist, OB-GYN to join mutli-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

FAMILY PHYSICIAN: Board Certified, full-time position teaching residents and medical students at Hennepin County Medical Center (an equal opportunity employer. Applications from women and minorities are specifically invited.) Inquiries to: Stuart V. Thorson, M.D., Department of Family Practice, Hennepin County Medical Center, 701 Park Avenue South, Minneapolis, MN 55415. (612) 347-3103.

PSYCHIATRIST interested in child and adult psychiatry needed in Bemidji, Minnesota. Private practice or joining a 20 man multispecialty clinic next to a new 92 bed hospital is possible. Salary offered with clinic, \$50,000 plus incentive. Ideal for the individual looking for outdoor activities during all four seasons, State University located in Bemidji. Approximate trade area of 70,000. Contact D.E. Carlson, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

PHYSICIANS SIGNATURE LOANS TO \$50,000. Up to 7 years to repay. No prepayment penalties. Prompt, courteous service. Physicians Service Assn., Atlanta, GA. Toll-Free (800) 241-6905.

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UNIVERSITY HEALTH SERVICE: gynecologist or generalist for women's health program, willing to work in team approach. Routine gynecological care, family planning services, health education, supervising nurse practitioners. Board-certification preferred. Illinois license or eligibility for license by time of appointment. Campus of 25,000, 1½ hours from downtown Chicago. Position available immediately. For further information and application contact Director, University Health Service, Northern Illinois University, DeKalb, Illinois 60115. 815-753-1311. Equal Opportunity/Affirmative Action employer.

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FIFTY PHYSICIAN MULTI-SPECIALTY clinic in west central Wisconsin wants neonatologist, neurologist, neurosurgeon, orthopedic surgeon, and otolaryngologist. Excellent cultural, educational, and recreational facilities. 90 miles from Minneapolis. Please contact James R. Jepson, Administrator, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5266.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

GROW WITH US IN THE SUNBELT — The INA Healthplan needs physicians in family practice and most specialties in Miami, Tampa, Dallas, Phoenix, Tucson and Los Angeles. Attractive salaries and comprehensive benefits including professional development, retirement, and profit sharing programs are provided. If team interaction and casual living interest you, send a brief CV to Medical Administration, INA Healthplan, Inc., 7616 LBJ Freeway, Suite 303, Dallas, Texas 75251.

GENERAL SURGEON to live and practice in Moorhead, Minnesota. Metro area 100,000. Three colleges, Minnesota lake country is nearby. Write: SURGEON, Box 914, Moorhead, Minnesota 56560.

APPLICATIONS WELCOMED from board-certified general radiologists (Nuc Med, CT, US, Angio, Myelo), Saint Paul-Ramsey Medical Center with University of Minnesota Teaching Appointment. Salary negotiable. Start immediately. Call Suzanne J. Smith, M.D., (612) 221-3793.

MINNESOTA, St. Cloud: Opening for full-time emergency physician to join growing private group. Consider only residency trained or ABEM Credential Eligible physician. Fee for service corporation, excellent salary and benefits. 500 bed hospital serving large area in Central Minnesota. Paramedic service established. ER facility being enlarged to handle regional resource and trauma status. Rapidly growing area — three major colleges, excellent schools, good hunting/fishing. One hour from Minneapolis-St. Paul, yet all the benefits of smaller town living. Contact D. L. Frederickson, M.D., Emergency Medical Director, St. Cloud Hospital, St. Cloud, MN 56301 (612) 255-5656.

ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

OB/GYN SPECIALISTS Enjoy the security of group practice with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

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Continued from page 269

SHOPPING FOR AN AIRPLANE? Lowest prices in US on new and used aircraft. All types available, prompt delivery. We are wholesalers — Call us Toll-Free (800) 241-6905. Physicians Service Assn. Atlanta, GA.

EQUIPMENT FOR sale — Doctors office. 698-5354.

WANTED: Internist for 15 physician multi-specialty group in Detroit Lakes, Minnesota. Physician-owned six-year old clinic attached to a 100 bed hospital. Fifty miles east of Fargo-Moorhead in the Heart of the Lakes country. The area offers excellent recreational activities with a top school system. Contact Robert A. Koshnick, M.D. or Robert E. Hodapp, M.D., at Box 727, Detroit Lakes, Minn., 56501 or telephone (218) 847-3181.

FAMILY PRACTITIONERS needed to join a 3-family practitioner and 1 general surgeon clinic in Litchfield, a community of pop. 6,000, located 70 miles west of Minneapolis. There is a 95-bed hospital with a CCU, ICU, full radiology and pathology services, plus weekend call coverage. We are anxious to meet you and your family, to demonstrate the advantages of practicing in this area. Contact: Daniel A. Johnson, M.D. at 35 E. 4th St., Litchfield, MN 55355 Telephone: (612) 693-2804

FAMILY PHYSICIAN. Board certified or eligible to join several other physicians in providing high quality medical care at St. Peter State Hospital, an accredited psychiatric institution. Fertile agricultural area, woods, lakes, skiing, excellent schools. One hour from Minneapolis. Salary into 60's. Excellent fringe benefits. Contact Tom Stapleton, M.D. 1-507-931-7102 or write St. Peter State Hospital, St. Peter, MN 56082.

GERIATRIC INTERNIST The Department of Medicine and the Geriatric Research, Education and Clinical Center (GRECC) at the Minneapolis VA Medical Center are seeking a staff internist for the Intermediary Care and GRECC Diagnostic and Demonstration inpatient units. Clinical responsibilities will be divided between the two units. Applicants must have specific training in geriatric medicine and be prepared to conduct clinical and/or laboratory research in this area, as well as patient care. Full-time academic appointment in the Department of Medicine, University of Minnesota. Please send curriculum vitae to Gabe J. Maletta, Ph.D., M.D., Program Director, GRECC, VA Medical Center, Minneapolis, MN 55417, or call (612) 725-6767, ext. 6313. This position is immediately available.

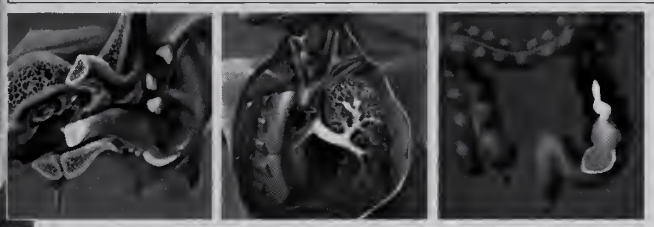
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Bactrim™ (trimethoprim and sulfamethoxazole) succeeds

Bactrim is useful for the following infections when due to susceptible strains of indicated organisms (see indications section in summary of product information):

Expanding its usefulness in antimicrobial therapy



in recurrent UTI... a continuing record of high clinical effectiveness against common uropathogens

in acute otitis media in children... effective against both major otic pathogens... with b.i.d. convenience

in acute exacerbations of chronic bronchitis in adults... clears the sputum and lowers its volume... on b.i.d. dosage

in shigellosis... faster relief of diarrhea than with ampicillin²

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. *Note:* The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. Limited clinical information presently available on effectiveness of treatment of otitis media with Bactrim when infection is due to ampicillin-resistant *Haemophilus influenzae*. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. **Blood dyscrasias:** Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. **Allergic reactions:** Erythema

multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. **Gastrointestinal reactions:** Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea and pancreatitis. **CNS reactions:** Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness.

Miscellaneous reactions: Drug fever, chills, toxic nephrosis with oliguria and anuria, periarthritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: Double Strength (DS) tablets, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100; Tel-E-Dose® packages of 100; Prescription Paks of 20 and 28. Tablets, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose® packages of 100; Prescription Paks of 40. Pediatric Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry-flavored—bottles of 100 ml and 16 oz (1 pint). Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).



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in recurrent urinary tract infection

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from site to source

Bactrim continues to demonstrate high clinical effectiveness in recurrent urinary tract infections. Bactrim reaches effective levels in urine, serum, and renal tissue¹...the trimethoprim component diffuses into vaginal secretions in bactericidal concentrations¹... and in the fecal flora, Bactrim effectively suppresses Enterobacteriaceae^{1,2} with little resulting emergence of resistant organisms.

1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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160 mg trimethoprim and 800 mg sulfamethoxazole

DOUBLE STRENGTH TABLETS

maximizes results with B.I.D. convenience

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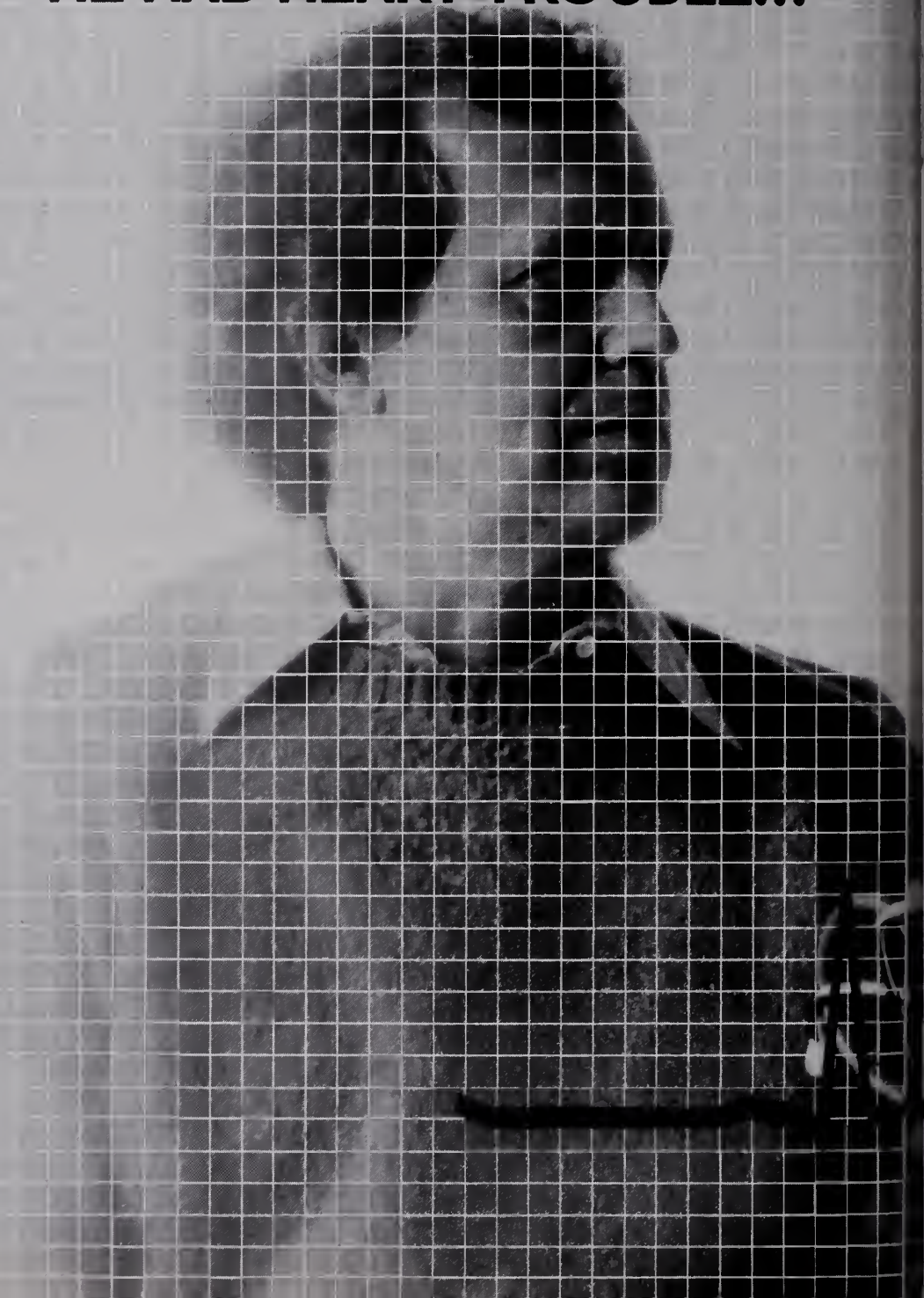
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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy). The effectiveness of Valium (diazepam/Roche) in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

How Supplied: For oral administration, Valium scored tablets—2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100* and 500; * Prescription Paks of 50, available in trays of 10; * Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, † and in boxes containing 10 strips of 10; †

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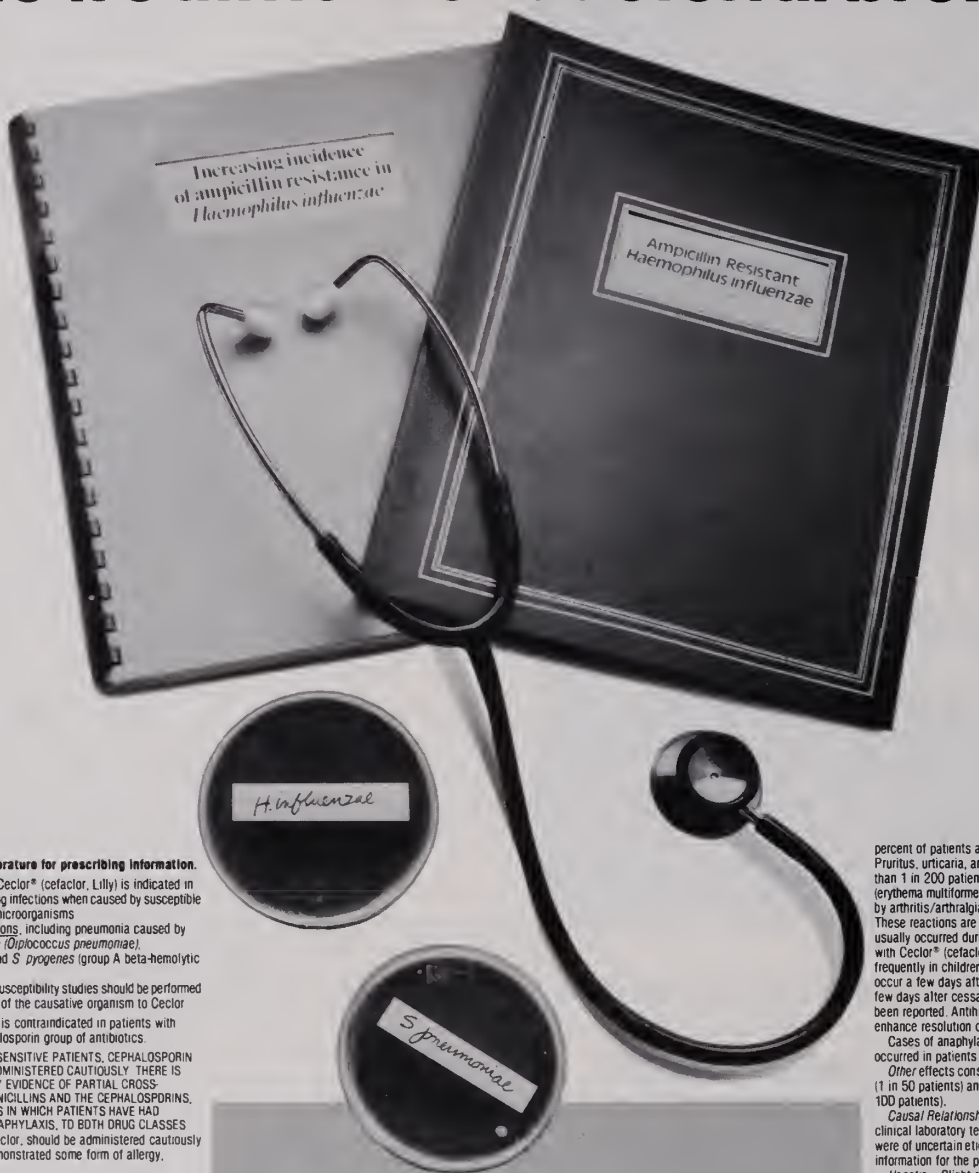
Minnesota Urological Society

North Central Occupational Medical Association

Saint Paul Surgical Society

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An added complication... in the treatment of bacterial bronchitis*



Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Cefaclor* (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diphtheria pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefaclor.

Contraindication: Cefaclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefaclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Precautions: If an allergic reaction to cefaclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefaclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefaclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefaclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistix® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy—Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy—Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefaclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefaclor.

Hypersensitivity reactions have been reported in about 1.5

Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefaclor.¹⁻⁶

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefaclor.⁷

Cefaclor®

cefaclor

Pulvules®, 250 and 500 mg

percent of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefaclor* (cefaclor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). [1002811]

*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefaclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630

200086

President's Letter



This is my last opportunity to write to you from this vantage point. I would like to take the occasion to pass along some observations about MMA and the practice of medicine in Minnesota.

Before I do, I would like to say it has been a great privilege and honor for me to have served as your president in the past year. I am impressed with the staff members and the support that they have given to the Association as well as to myself. We are fortunate to have such capable, dedicated, and loyal people to help us with our work. I have attended many committee meetings, and I feel that they are functioning in an effective manner. We also have many members of the Association of whose efforts we can all be very proud. I would like to single out particularly Dr. James Knapp who is completing his final year as Chairman of the Board of Trustees. Jim's work always has been outstanding. I have appreciated the opportunity of working with him.

The following are some of my observations. Consider the role or the primary purpose of MMA. The Association must represent and be an advocate for the physicians in the State. This requires the maintaining of an awareness of the problems and concerns of all the physicians, whose modes of practice, economic circumstances, and patient relationships are changing at an ever increasing rate. We are witnessing an increase in the presence of multi-hospital corporations, many and varied HMOs with both open and closed panels, and more hospital-based salaried physicians. The accommodation of this increasing diversity of our physician members is our major challenge for the future. If MMA, as an association, were to lose sight of these considerations, our membership would fail to grow, and our level of support from existing members would decline. This course could lead to a point where our Association represented only a minority of the physicians.

In the area of legislation and regulation, our role must be that of a watch dog on one hand, and also that of a leader. Difficult judgments must be individually

made such as whether to simply react against change in order to maintain the status quo or to cause or effect change in a positive manner. To do this effectively requires good long range planning and a continuing reassessment of our priorities.

The climate is changing with regard to the government's role in health care. In the early 1970s, Congress passed legislation setting up nation-wide review networks called Health Systems Agencies (HSAs) to control hospital expansion and investment and Professional Standard Review Organizations (PSROs) to oversee the care provided to Medicare and Medicaid patients. Many feel that the benefits from these review programs have been negligible and will be phased out. Competition and market forces now are looked upon by the health planners to replace regulation, and with this trend will come marketing of medical care and an increasing diversity of health care delivery systems.

Much concern has been expressed regarding the economic burden of the entitlement programs. Medicare and Medicaid, and the growing proportion of our country's GNP, which is expended on medical care. These concerns are legitimate, and cost containment is needed. Some type of rationing of health care in the future is a certainty. Limitation of access in one or more of its many forms and increasing the cost sensitivity on the part of both consumer and provider appear to be the tools at hand. We physicians must assume a major responsibility for this type of planning. The moral and medical-ethical implications are enormous. As citizens, we have a responsibility to explore and be willing to implement reasonable methods of cost containment. As physicians, we have an equally great responsibility to provide conscientious high-quality care to the people. We must not allow the new emerging systems of health care delivery to interfere with these responsibilities.

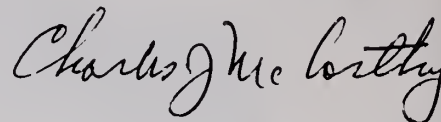
My final observation is in regard to our MMA staff. As you know, Mr. Harold Brunn will be stepping aside as our chief executive officer in September of this year.

PRESIDENT'S LETTER

Fortunately, he will continue to work for the MMA in another capacity and spend part of his time with the professional liability company (MMM-MMIE). Harold has been a valued employee of the MMA for 30 years. The fact that our Association has grown, kept pace with the times, and has been responsive to the needs and concerns of all the physicians in Minnesota has been due to Harold Brunn far more than any other

single individual. He has represented us over the years with ability, dignity, and style.

We all owe Harold Brunn our sincere thanks.



Charles J. McCarthy, M.D.
President
Minnesota Medical Association

Continuing Medical Education St. Cloud Hospital Workshop on Blood Component Therapy Saturday, March 20, 1982; 8-4:30

Program: Introduction	Roslyn Yomtovian, M.D., Pathologist and Medical Director of Blood Bank, St. Cloud Hospital.
Blood Components: The Role of American Red Cross Blood System	Robert Bowman, M.D., American Red Cross Blood Services, St. Paul Region.
Past, Present, and Future of Blood Component Therapy	Jeffrey McCullough, M.D., University of Minnesota Hospitals and Director of American Red Cross Blood Services, St. Paul Region.
Untoward Effects of Blood Component Therapy	S. Breannan Moore, M.D., Mayo Clinic Blood Bank.
Blood Component Therapy in Neonates and Children	Phyllis Warkentin, M.D., University of Minnesota Hospitals.
Blood Components for Surgical and Trauma Patients	John Crosson, M.D., Hennepin County Medical Center, Minneapolis.
The Use of Blood Components in Patients with Coagulation Problems	William Swaim, M.D., V.A. Medical Center, Minneapolis.
Blood Bank Support of the Oncology Patient	Bruce Lewis, M.D., University of Minnesota Hospitals.
Panel Discussion of Submitted Case Histories	Moderated by Roslyn Yomtovian, M.D.

Approved for 6 $\frac{1}{4}$ hours of CME Credit for physicians, and designed to meet the registration requirements of the Minnesota Board of Nursing. For further information, contact Jane Ceynar at St. Cloud Hospital, Department of Pathology, (612) 255-5632, St. Cloud, Minnesota. This workshop is being cosponsored by the American Red Cross Blood Services, St. Paul Region.



Editor's Notebook

Editor's Report to the House of Delegates

"There is a technique, a knack, for thinking, just as there is for doing other things. You are not wholly at the mercy of your thoughts, any more than they are you. They are a machine you can learn to operate."

The Practical Cogitator: The Thinker's Anthology,
Charles P. Curtis, Jr. and Ferris Greenslet,
Houghton Mifflin Company, Boston, 1945

This is my eighth editorial report to you.

Each year about this time, I go through a ritual that cranks up my thoughts for this report.

This ritual goes like this:

- I examine the financial report to see if we are within budget. This year has been a difficult one as our income has been down and inflation has caused our expenses to go up.
- I peruse back issues of the preceding year. (While doing so, I admire the cover photographs, scan the articles, and wait for ideas to dawn.)
- I apply the seat of my pants to the chair, break out my snub-nosed, soft-leaded pencil with a worn eraser, and start operating the machine in my head. (This works best with a deadline staring me in the face. Sooner or later, after blood breaks out on your forehead, the thoughts begin to flow.)

In any event, having just completed this yearly ritual, I have decided (as any self-respecting editor would), that MINNESOTA MEDICINE is more indispensable than ever.

Why?

Let me count the ways.

1. MINNESOTA MEDICINE is widely read among members of the Minnesota Medical Association. You don't have to take my word for it. According to a Communications Audit of the Association by a public relations firm, completed in March, 1981, Minnesota physicians rated their readership of various publications in this order.¹

I read the following . . .	Always	Often	Occasionally	Never
1. MINNESOTA MEDICINE	46%	35%	17%	2%
2. MMA Newspace	45	35	20	0
3. MMA Viewpoint	28	34	34	4
4. AMA News	36	31	22	11
5. JAMA	37	33	22	8
6. AMA Specialty Journal	33	32	23	13

Based on this survey and reader comments, the public relations firm concluded: "Member acceptance and respect for this publication is outstanding." This conclusion does not mean we have no faults. We surely do. Because of budget constraints, we don't publish articles fast enough to suit our contributors. And because of our conservatism, we tend to be stodgy with our prose and our titles. But, all the same, MINNESOTA MEDICINE is widely read — a fact medical scientists and medical politicians should not ignore. Besides, for many readers, MINNESOTA MEDICINE is a monthly, concrete reminder of one of the benefits of belonging to the Minnesota Medical Association.

2. MINNESOTA MEDICINE helps keep us aware that the practice of Medicine, all talk about it being a business aide, remains a difficult scientific endeavor. Original scientific articles make up two-thirds of our pages, and we turn down two of every three articles

EDITOR'S REPORT TO THE HOUSE OF DELEGATES

submitted. We favor articles by members of the Association. After all, they pay the freight. I consider the journal an ideal testing ground for those who wish to practice and polish their writing skills and to acquire scientific information. In my experience, writers and readers tend to be leaders. This is because the acts of dispensing and soaking up scientific information require hard intellectual effort. As the late Joseph Garland, editor of the *New England Journal* observed: "In respect to the literature of modern medicine, the propriety of publishing it has little relation to its palatability or the difficulty of understanding it. It represents the inevitable course of science, and no matter how rough the road to truth may be, those who would follow it must struggle or drop behind. . . If, as Euclid stubbornly contended, there is no royal road to geometry, neither is it possible to make the path to an understanding of modern medical science easy traveling for the dull, the technologically inadequate, or the intellectually inert."²

3. MINNESOTA MEDICINE offers a medium for striking a balance between scientific, political, and economic positions. Many idealistic purists are now filling the pages of medical journals with such well-intentioned messages: 1) good medicine and good business are incompatible, and therefore; 2) one cannot practice quality medicine, compete with one's peers, and serve patients simultaneously with a clear conscience. The extreme view of this position appeared in a recent letter to the editor of a well-known journal:³

"Humanitarian qualities such as wisdom, compassion, human concern, and service do not translate into economic values. If the present tendency to use economic terminology and economic evaluative criteria in health care continues, these humanitarian qualities, as well as the words that express them, will be eliminated from the profession. Thus, one of the professions that for centuries has called forth the very best in human beings will become just another fungible element in the rapacious diversion called the world of business."³

I simply do not buy this line of reasoning. Physicians will never regard patients as "fungible," i.e. interchangeable, entities, and businessmen are rarely "rapacious." Physicians can retain their professionalism, provide quality care in a competitive environment, and retain their souls. But the balancing act requires fuller information, more precise data for decision making, and frank reporting of the socio-economic tradeoffs. MINNESOTA MEDICINE has opened its pages to discussion of the moral and economic issues of competitive medicine, and we have provided the socio-economic division of the Minnesota Medical Association a regular section in our journal.

So much for my thoughts this year. We look forward to your continued support.



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Abdominal Distention

Its Significance in a General Hospital Population

SEWELL S. GORDON, M.D.* and PETER J. DORSEN, M.D.†

Seven cases are presented to emphasize the dangers of cecal perforation from non-obstructive distention as well as distal colonic obstruction. Early and sequential horizontal beam films as well as a barium enema, unless contra-indicated, help to direct care either to surgery or to conservative medical management in patients with persistent or increasing abdominal distention.

ABDOMINAL DISTENTION develops in hospitalized patients admitted often for unrelated reasons. When distention develops, the danger of perforation is present whether due to obstruction or pseudo-obstruction.

History and physical examination are, of course, essential in the differential diagnosis. Xray plays a key role via the reliable visual sense to explore an unknown: the big distended abdomen.

Xray may reveal organomegaly, ascites, bladder distention, gastric dilatation, simple obesity, a retroperitoneal lipoma, or painless pneumoperitoneum as the cause of a patient's distended abdomen.

This paper explores in some depth the distended abdomen due to colonic dilatation. To be stressed is the danger of cecal perforation even in the cases of non-obstructive paralytic ileus.

Literature Review

Bryk and Rosenkranz¹ listed 24 cases of non-obstructive colonic distention. In only 13% of these cases was the distinction between obstructive and non-obstructive distention not made from plain films alone. They also outline the criteria of differential diagnosis. Bryk and Soong² emphasize plain Xray findings, but "they indicate the necessity of an early decompressive surgical procedure which can be done without prior sigmoidoscopy or barium enema" when a patient is too ill.

Our experience does not fit so neatly into their Xray criteria to differentiate obstructive from non-obstructive colonic ileus. We identified only two situations in which we could confidently distinguish significant from insignificant colonic distention. The first is a history of colonic distention due to chronic constipation of long-standing. The second is Xray documented uncomplicated distention of many years duration.

Murphy⁴ in 1896 was the first to describe "pseudo-

obstruction". Spira and Wolff³ define it as "a functional obstruction without evidence of mechanical blockage". The entity "Ogilvie's Syndrome" was coined in 1948 for pseudo-obstruction after the author described 2 patients with classical colonic distention, who at surgery had a normal colon but with celiac plexus diffusely infiltrated by carcinoma. He explained this as "large intestinal colic due to sympathetic deprivation". Robertson et al.⁶ in 1958 first reported spontaneous perforation of the cecum in pseudo-obstruction. Stephens⁷ describes four cases of pseudo-obstruction in which three had renal impairment and dehydration. Wahebo et al.⁸ notes that the patient with pseudo-obstruction may present in the same manner as true colonic obstruction. Acute or chronic alcoholism was frequently related to the colonic distention. Hyponatremia or hypokalemia was associated with alcoholism in 25% of their cases. Norton et al.¹¹ reports four cases of pseudo-obstruction, all in alcoholics. At surgery all had a longitudinal tear along the anterior taenia coli of a grossly dilated cecum and ascending colon with mucosa bulging between the muscle edges. In several, peritonitis was associated with such bulging but still unperforated mucosa. Only one had an actual hole in the mucosa to account for peritonitis. Moss and Goldberg¹² summarize the implication of various drugs in the etiology of pseudo-obstruction. Chronic use of anticholinergic and parasympatholytic drugs may produce marked intestinal dilatation. Ganglionic blocking agents and anti-Parkinson drugs are implicated. Narcotics all too often produce constipation and abdominal distention.

Endocrine disorders such as myxedema are associated with intestinal dilatation. A myxedematous patient may demonstrate extreme colonic dilatation and yet be symptom free.

Collagen vascular disease such as scleroderma may affect the colon in addition to the esophagus and small bowel. Although the characteristic roentgen finding is

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wide-necked colonic diverticula, a more common finding is generalized colonic dilatation.¹³ Legge et al.¹⁴ and Gilat and Spiro¹⁵ reported several cases of systemic amyloidosis with the clinical pattern of obstructive pulmonary disease and bowel obstruction. At laparotomy these patients did not have mechanical obstruction. Similarly, bowel distention occurs in exacerbations of acute porphyria.¹⁶ The chronic ingestion of lead may produce marked colonic distention. Better known and more frequently encountered are cases of colonic distention associated with acute inflammation of the abdomen seen in pancreatitis,¹⁷ cholecystitis, and appendicitis.¹⁸

Colonic distention occurs all too often following surgery^{6,19} especially in the pelvis and after spine or pelvic trauma. Koikkalainen et al.²¹ described 3 cases of spontaneous colon perforation after thoracic surgery due in part to postoperative use of positive and expiratory pressure ("PEEP"). Hirsch⁹ in 1961 reported a case of spontaneous rupture of the cecum after normal childbirth. Fromm¹⁰ reported cecal perforation secondary to paralytic ileus that followed a postpartum sterilization procedure.

Lastly, there is the entity of idiopathic pseudo-obstruction occurring without sex predilection in a younger group, aged 17 to 37, often with a history of multiple previous operations for bowel obstruction. Surgery is contraindicated in these cases because the response is poor. Fortunately the group is relatively small and perforation uncommon.

Case Reports

Case 1

This case is a known acromegalic with active carcinoid syndrome and an asymptomatic abdomen. The KUB showed marked colonic distention with a transverse cecal diameter of 25 cm. (Figure 1).

Case 2

A 27-year-old with known inflammatory bowel disease admitted

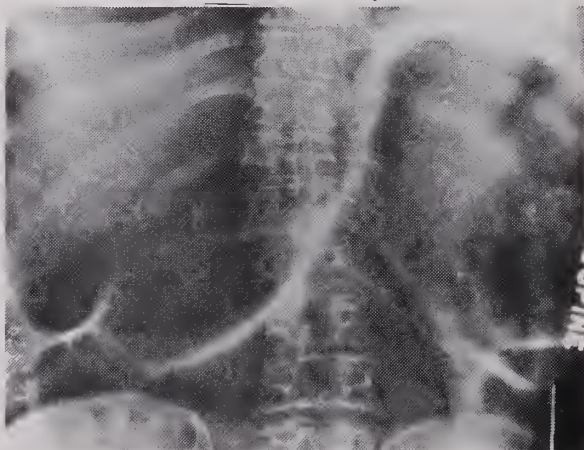


Fig. 1 — Case 1 Supine film of abdomen. Transverse cecal diameter 25 cm. Abdomen chronically distended. Otherwise asymptomatic.

with chills, fever and progressive diarrhea. When he failed to respond to medical therapy a plain supine abdominal film showed the classical findings of toxic megacolon (Figure 2). A total colectomy was done. Pathological study showed severe ulcerative colitis and histologic toxic megacolon.



Fig. 2 — Case 2 Supine film of abdomen. Dilated ascending and transverse colon. Shaggy mucosa and nodular contour in transverse colon consistent with diagnosis of "toxic megacolon".



Fig. 3 — Case 3 Supine and left lateral decubitus (Figure 4) projections. Marked colonic distention with air-fluid levels in right colon. No gas in rectum. Films were made prior to two attempts at colonoscopic decompression. A supine film (not shown) was made after second colonoscopy. This was considered normal.

Case 3

A 71-year-old was admitted for diarrhea, dehydration and significant abdominal distention (Figures 3 and 4). She underwent decompressive colonoscopy. Afterward, although asymptomatic, and despite resolution of colonic dilatation on a supine abdominal film (not shown), she developed peritonitis and suddenly expired.

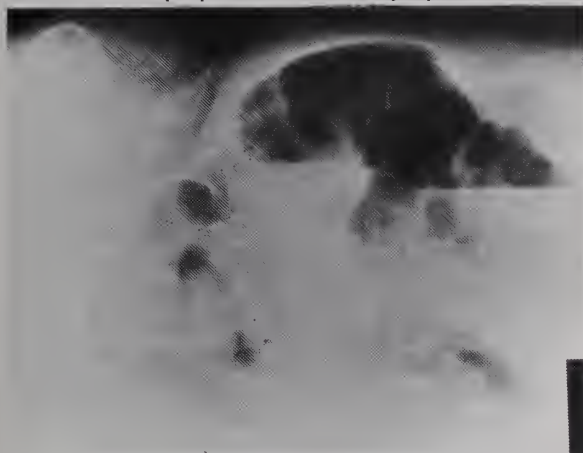


Fig. 4 — Case 3 Left lateral decubitus projections. (See Figure 3.)

Case 4

This 62-year-old female chronic alcoholic smoker was admitted for hip arthroplasty. The patient developed an increasingly distended tympanitic abdomen after surgery. Bowel sounds were present but the abdomen was tender. The Xray revealed a 13-15 cm wide cecum with small bowel dilatation as well (Figure 5). Barium enema was recommended but not done because patient developed alcoholic hallucinosis. Decompression was attempted with a rectal tube. A cross-table lateral of the abdomen (Figure 6) showed free air under the an-

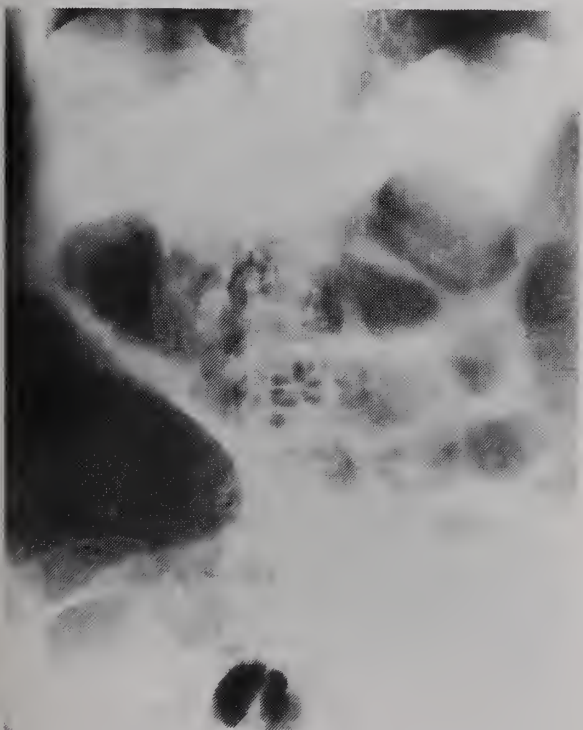


Fig. 5 — Case 4 Supine film of abdomen. Marked colonic distention on second postoperative day. Cecum measured 14 cm.

terior abdominal wall indicating a perforated hollow viscus. At surgery they drained the fecal spillage and did a right hemicolectomy. Patient recovered after a long stormy course.

Case 5

A 72-year-old man who underwent total knee replacement developed asymptomatic but massive colonic distention on the second post-operative day. He responded favorably to nasogastric suction and rectal suppositories without having to resort to surgery.

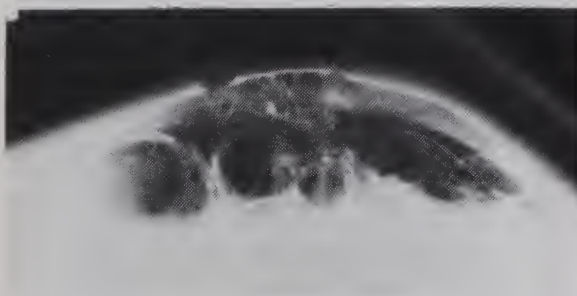


Fig. 6 — Case 5 Patient supine. Cross-table lateral abdomen with Xray beam horizontal. Note free air under anterior abdominal wall. Gas containing bowel loops sharply outlined anteriorly due to overlying free air. Cecal perforation followed a hip arthroplasty. No bowel obstruction at surgery.

Case 6

A 79-year-old female myxedematous diabetic developed asymptomatic abdominal distention following five days of constipation. A distended and tympanitic abdomen was associated with hyponatremia. The distention resolved when the hyponatremia was corrected (Figure 7).

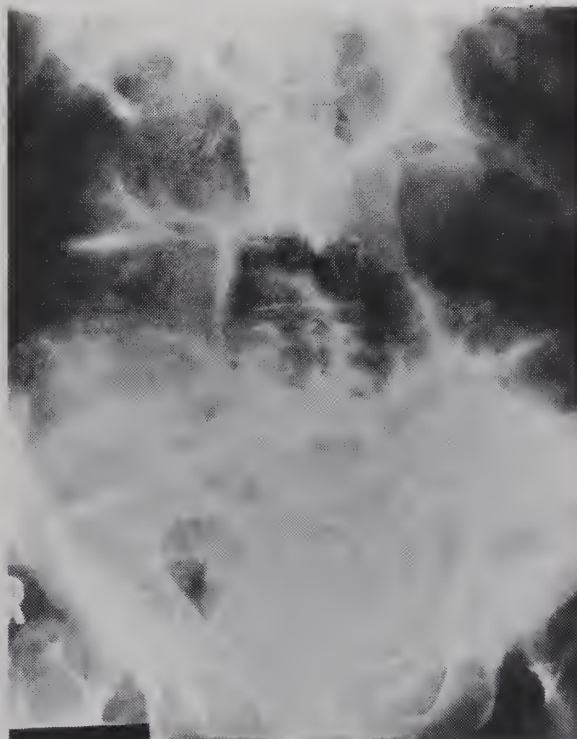


Fig. 7 — Case 6 Supine film of abdomen. Marked colonic distention. Cecum over 14 cm. Hypothyroid patient with history of chronic constipation. Marked distention but otherwise asymptomatic. Patient responded to treatment of constipation and hyponatremia.

Case 7

A 43-year-old female treated with Dilantin, Mebaral, Mysoline, and Valium for seizures developed colonic distention with air fluid levels following four days of diarrhea and abdominal pain. A barium enema ruled out colonic obstruction. Patient was admitted to another hospital where a subtotal colectomy was done to correct her colonic redundancy.

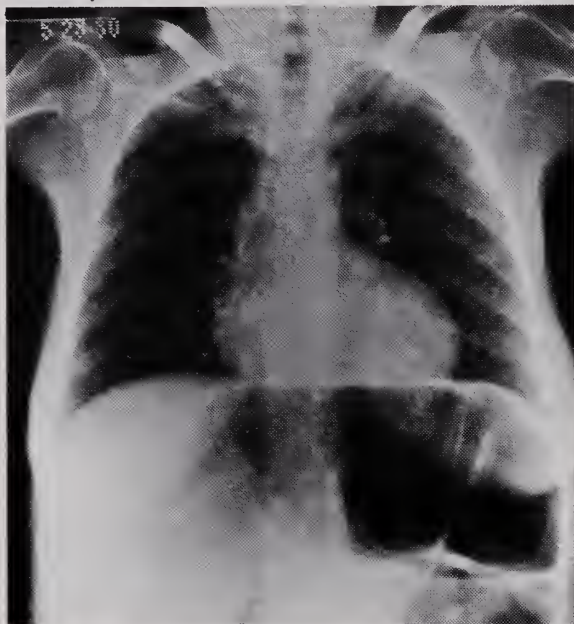


Fig. 8 — Case 7 Upright film of chest. Note marked colonic distention under diaphragm. Air-fluid levels were present but not well demonstrated here.



Fig. 9 — Supine film of abdomen. Extreme colonic distention. Patient complains of diarrhea and abdominal pain. Patient receiving multiple anti-seizure medications. Follow-up barium enema done elsewhere was negative.

Discussion

In addition to the cases described above, we have seen, within the past three or four years, numerous other patients with colonic distention. One of these patients had chronic obstructive pulmonary disease. In this patient the only clinical abnormality noted was hypokalemia. The abdominal distention subsided following correction of the hypokalemia. In addition we have done emergency barium enemas on a number of cases with colonic distention in which the diagnosis turned out to be bowel obstruction due to various causes. Not infrequently the plain film findings in colonic volvulus are not typical, and do not permit an accurate diagnosis. It is extremely important in both sigmoid and cecal volvulus to do an emergency barium enema in order to make an early diagnosis, because of the danger of strangulation. The other types of large bowel obstruction are not generally as fulminant, but do cause progressive colonic distention, and ultimately cecal perforation if not diagnosed and treated. The danger of cecal perforation secondary to distal colonic obstruction is well recognized clinically. What is not as well recognized is that cecal perforation will occur in non-obstructive cases where the distention is relatively acute. Various transverse cecal measurements have been given as indicative of threatened perforation. These measurements vary from eight through 14 cm. Yet there are cases of chronic colonic pseudo-obstruction where the cecal diameter has been in the range of 16 or 25 cm. for long periods without any threat of perforation. As indicated from the literature review, it is important to know the history and other clinical data in these patients. Certain patients may have colonic distention that waxes and wanes for years without a threat of perforation. The acromegalic male, the myxedematous lady and the lady on anti-seizure medications are three such patients.

Relative to Case 3, the patient who died after bowel perforation, it should be noted that had another film been made with a horizontal beam, either upright or left lateral decubitus, the diagnosis of perforation would have been made immediately, and necessary surgery carried out. It would appear, therefore, that the threat of perforation exists when distention is progressive and relatively acute. It is simple to do an emergency barium enema to rule out colonic obstruction. If a normal saline base is used in the barium mixture instead of plain tap water, there is no danger of water intoxication. There are only three contraindications. The first two are known free perforation and toxic megacolon, either of which should be readily apparent on the preliminary plain film study. The third

is a recent (within one week) biopsy of the lower bowel. The barium enema is done without previous preparation and with great patience, because frequently (especially in non-obstructive colonic distention) the colon is packed with feces. If not contraindicated, glucagon is often given intravenously or intramuscularly to alleviate spasm. If a true obstruction is encountered at any point, we do not force barium beyond it. This point of obstruction is generally obvious because of the differential caliber of the bowel above and below the obstruction, and the presence of retained impacted feces above that level. Using the precautions outlined above, the barium enema is a relatively innocuous if not a comfortable procedure. If an obstruction is found, we know that, with the possible exception of sigmoid volvulus, surgery is indicated. If there is no obstruction and colonic distention is present, the patient must continue to be closely observed clinically and radiologically, because there is still the threat of cecal perforation if the cecal distention is progressive.

In the absence of pain and peritoneal signs conservative treatment may be tried. This consists of gastric suction, rectal lavage if indicated, and correction of dehydration and electrolyte imbalance if present. If this is unsuccessful and cecal distention increases or is static at 10 cm. diameter or above, more aggressive therapy is indicated. The value of colonoscopy in this

context is still controversial.²³ Clearly, if this is effective and free of complications, it would be an ideal solution. As yet this has not been established. If endoscopy is not rapidly effective, surgical decompression is indicated.

Conclusion

In the usual hospital population, there are many elderly patients with complex medical, post surgical and post traumatic problems. These are the people who have an increased incidence of abdominal distention. Early Xray study including supine and horizontal beam films is indicated to determine its nature. Gaseous distention of the cecum, when it is recent in origin and persistent, must be considered an urgent problem regardless of its cause. The danger of cecal perforation is greatest when it is due to distal mechanical obstruction. This is determined by doing an emergency barium enema. What is not as widely appreciated is the fact that perforation may occur with gaseous cecal distention of non-obstructive nature.

Acknowledgment

Many thanks are due to Miss Patty Sorensen for her diligence in seeking out the cases and in pursuing the histories on the various patients. Without her help this paper could not have been written.

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Secondary Amenorrhea

D. K. OHRT, M.D., EDITOR*

THIS 26-YEAR-OLD Peruvian Indian female complained of amenorrhea. She explained she was "unable to become pregnant." Menarche occurred at age 11 concomitant with development of typical female secondary sex characteristics. Her menses had been regular every 28-30 days. They lasted three to four days without cramping or unusual flow until 1975. In 1975, before coming to the United States, her menses abruptly ceased and had not returned by the time of her first clinical evaluation on December 17, 1978. She denied ever using any form of birth control. In 1976 she married a student currently enrolled at Bethany College in Mankato. They were planning to return to South America as missionaries as soon as his education was finished. There was no clinical evidence that pregnancy had occurred during the time of marriage. She also denied any history of nipple discharge, progressive hirsutism, or enlargement of the clitoris. She denied use of alcohol, tobacco, or prescription or over-the-counter drugs. The family history was negative except for a grandmother with adult onset diabetes.

Physical Examination

She was an attractive, cooperative, Indian female weighing 110 lbs. The vital signs were blood pressure 115/75 mm/Hg, pulse 70/min., and respiratory rate 16/min. A small amount of fine facial hair was observed on the lip and chin. A small amount of stiff dark hair was present in the ears. No abdominal masses could be palpated. The pubic hair had a female distribution. The uterus was tilted anteriorly, and there seemed to be a mass palpable in the cul-de-sac. The musculoskeletal and neurological examinations were normal.

Laboratory Findings

The hemoglobin was 14.1 gm/dl, hematocrit 44.1%, and white blood cell count 5,100/mm³ with a normal differential except for a borderline high absolute eosinophilia. The urine specific gravity was 1.021 with normal pH, dipstick, and microscopic evaluation. The following hormonal studies were obtained:

1. follicle stimulating hormone — 12 mIU/ml. (normal: premenopausal 4-10 mIU/ml., mid cycle peak — 2 times the base line, postmenopausal 40-50 mIU/ml.)
2. luteinizing hormone — 50 mIU/ml. (normal: 5-30 mIU/ml, mid cycle greater than 3 times baseline, postmenopausal 30-200 mIU/ml);
3. 17 ketosteroids — 10.7 mg/24 hrs. (normal: 5-15 mg/24 hrs.);
4. 17 ketogenic steroids — 7.7 mg/24 hrs. (normal: 5-14 mg/24 hrs.)
5. testosterone — 390 ng/dl. (normal: less than 80 ng/dl);
6. pregnanediol — 1.9 mg/24 hrs. (normal: 0.5-1.5 mg/24 hrs.);
7. total urinary estrogens — 43.1 mcg/24 hrs. (normal: proliferative 5-25 mcg/24 hrs., ovulatory 25-100 mcg/24 hrs., luteal 10-80 mcg/24 hrs., postmenopausal up to 10 mcg/24 hrs.);
8. DHEA — 805 ng/dl. (normal 160-700 ng/dl); androstenedione — 195 ng/dl. (normal 60-250 ng/dl);
9. HCG — undetectable by RIA;
10. prolactin — 135 ng/ml. (normal; less than 20 ng/ml.) and repeat prolactin 4 weeks later 173 ng/ml. (normal: less than 23 ng/dl., [different reference laboratory];
11. ETR — 0.98 (normal: 0.90-1.17).

Differential Diagnosis

The patient was admitted for definitive treatment.

Dr. Theodore C. Nagel†: This patient went through a normal puberty with menarche at age 11 followed by regular menses which stopped suddenly at age 23. I shall approach this case from the standpoint of a total differential diagnosis of secondary amenorrhea, followed by evaluation of the hormone studies and then establish a final diagnosis or diagnoses. Our discussion of the differential diagnosis of secondary amenorrhea could start at either end of the body.

End-Organ Failure

First let us consider end organ failure or Asherman's

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syndrome which is an eponym for obliteration of the endometrial cavity. None of the usual causes of Asherman's syndrome such as post partum D & C or intrauterine infection were present. When this is considered, Provera, or another progestin to induce withdrawal bleeding, provides effective evaluation. If the patient bleeds, the endometrial surface is still functioning. One might see hypomenorrhea but would not expect total amenorrhea.

Next we move up a bit farther and consider ovarian failure. Her history is negative for hot flashes or other expected menopausal symptoms. The vaginal mucosa appeared healthy indicating adequate estrogen production. Thyroid or adrenal failure may accompany ovarian failure but are absent both on laboratory and clinical evaluation in this case. The resistant ovary syndrome is rare and is usually characterized by primary amenorrhea. Biopsy of the ovary would demonstrate unstimulated follicles and gonadotropins would be elevated to menopausal levels.

Excessive Androgens

At this point, we should consider excessive androgen production from either polycystic ovary syndrome (PCO) or an ovarian tumor. With PCO, the onset of amenorrhea is more gradual, often resulting in oligomenorrhea rather than true amenorrhea. What physical findings support excessive androgen production? Some hair is androgen dependent and others not. Everyone grows eyebrows, eyelashes, and scalp hair. Secondary sexual hair growth is androgen dependent in the woman. If the androgen level is excessive, hair appears on the face and trunk.

Hair Characteristics

This patient was a Peruvian Indian and would likely have had scant body hair characteristic of Orientals and American Indians. It is also important to distinguish type of hair. Vellus hair is fine, straight and generally non-pigmented while sexually stimulated terminal hair tends to be dark, coarse, and curly. She had increased body hair for her race. Even more important the hair in the ears is the most abnormal site of hair growth in women and, one of the most significant physical observations.

Clitoral Index

Patients with hair growth secondary to androgen excess usually develop acne and prominent masculinization with increased muscle mass, deepening of the voice, and enlargement of the clitoris. In our clinic we

measure the length and width of the glans clitoris and then multiply these numbers to provide a clitoral index.¹ If over 35 square mm., the patient almost always has androgen excess. The photo of the external genitalia demonstrates unequivocal enlargement of the clitoris. Does the ultrasound demonstrate a mass as suggested in the protocol?

Ultrasound Study

Dr. D. K. Ohrt*: The study was videotaped. The uterus is normal in size and configuration. The right adnexal area is unremarkable. Lying posterior and to the left of the uterus is an ovoid 8.0 cm. mass with a solid echo pattern. No other abnormalities can be identified.

Dr. Nagel: With these findings, I would recommend laparotomy on the basis of history, physical findings, the testosterone level which is almost in the male range, and the presence of a solid tumor mass by ultrasound. However, since this is a clinico-pathological conference a complete differential diagnosis of secondary amenorrhea is an appropriate part of the discussion, and there is reason to pursue the differential diagnosis further since the prolactin level was elevated.

Let us go upstairs to the central nervous system and specifically to the hypothalamus and pituitary gland and discuss those causes of secondary amenorrhea. Those disorders arising above the pituitary level include the common situation of a young woman suddenly thrust into a foreign environment and her menses stop.

This is typical of the college student going away from home for the first time. I believe this patient's problem began before she came to the United States. We do not understand the pathophysiology of this common clinical situation even though we often talk of hypothalamic-pituitary block. Another clinical situation in which this occurs is anorexia nervosa which has a serious underlying psychiatric basis. Sometimes the amenorrhea can start before the weight loss is apparent. There are other disorders which can upset hypothalamic-pituitary function such as intentional weight loss, excessive exercise, and systemic illness including chronic renal disease, inflammatory bowel disease, and other endocrinopathies involving the thyroid and adrenal glands. Anosmia with primary amenorrhea is usually seen in a sexually immature patient but occasionally secondary amenorrhea is seen. Again, the mechanism is not explained. We should consider central nervous system tumor and also normal pressure hydrocephalus when that is identified. There is no clinical evidence to support any of these diagnoses.

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Numerous pathological processes affecting the adenohypophysis can produce pituitary hypofunction. Sheehan's syndrome secondary to post-partum hemorrhage is ruled out by lack of history of previous pregnancy. The pituitary can also be destroyed by granulomatous diseases such as sarcoidosis, tuberculosis and syphilis. The possibility of a pituitary tumor is quite real with the prolactin significantly increases on two occasions. Frequently the history is not helpful since most pituitary tumors are not yet producing typical symptoms such as headache, or the typical bitemporal hemianopsia, which may be identified in the history or by mapping the visual fields. Galactorrhea is not a useful sign to narrow our differential diagnosis unless it is spontaneous.² Secretion can be expressed from the breast of two-thirds of women during menstrual life. The serum prolactin level is an important test in the evaluation of amenorrhea in most cases, but I am not sure about this one. I understand tomograms of the sella were obtained and a CAT scan performed.

Dr. Lawrence Hammar*: The lateral views of the skull demonstrate a double floor (Figure 1). This could be an anatomical variant but is sufficiently unusual to warrant concern for a space occupying lesion particularly since the prolactin level is increased. The patient was then subjected to sella tomograms and a CAT scan. The tomograms were minimally equivocal. The CAT scan demonstrated a normal brain.

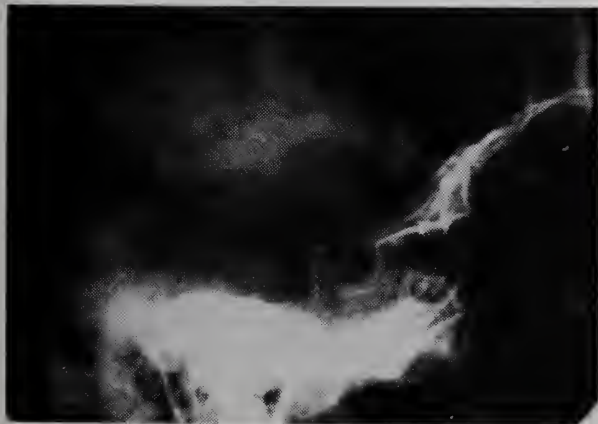


Fig. 1 — Lateral Film of Skull Demonstrating Double Floor of the Sella Turcica.

Dr. Nagel: Let's leave the sella and discuss other laboratory data. FSH should be done to rule out ovarian failure. If it is normal, assuming the pituitary is functioning, we presume the ovary is making estrogen. If there is concern about excessive androgen production, we measure LH and FSH and calculate the LH

and FSH ratio. If it is 3:1 or greater, this suggests excessive androgen production. It is 4:1 in this case. However, this ratio is positive and helpful in only one-third of cases with excessive androgen production.

Testosterone is the best test to detect an androgen secreting tumor. Here the testosterone is so high it has to come from a pathologic ovary. Normally one-half of testosterone originates in the adrenal. The other one-half comes from the ovary. In this case the testosterone is five times normal, yet the 17-ketosteroids are normal. The masculinization is explained by the potent endocrinological activity of testosterone. Even at levels five times normal, testosterone metabolites contribute little to 17 ketosteroids. The problem is not adrenal. The 17 ketogenic steroids indicate that other adrenal hormone production, primarily cortisol, is normal. We would expect androstenedione to be increased at least mildly in this case since it is a precursor of testosterone. It was measured only once and perhaps laboratory error might be an explanation. DHEA is mildly increased and while largely of adrenal origin it is also produced by the ovary. A mild increase would not be unusual with the testosterone elevation. Pregnenediol is measured in urine and is a major metabolite of progesterone. In this instance, it should be increased since progesterone is a precursor of testosterone. We would expect to find increased estrogens in the urine. Some of these might be produced by the tumor itself. The remainder would come from conversion of androgen to estrogen in a variety of peripheral tissues.

Elevated Prolactin

Now we again come to the problem of what to do with the elevated prolactin levels. I know you won't let me do what I want — and that is ignore it. It does not seem to fit well with any one of the physiological, pathological or pharmacological etiologies.³ A prolactin level greater than 300 ng/ml. is almost certainly secondary to pituitary tumor and the more it is over 100 ng/ml. the higher the probability it is from a tumor. Could it be ectopic in origin? Ectopic sources of prolactin have usually been lung tumors. We could presume that the pelvic tumor is a carcinoma and thus making prolactin. Could the lab be fooled? Could we be measuring human placental lactogen rather than prolactin? Most of the ovarian tumors, generally teratocarcinoma, which produce HPL also produce HCG. The HCG was negative.

Dr. Michael Howard†: Human placental lactogen was measured and was within normal limits.

Dr. Nagel: That essentially rules out that idea. We

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†Gynecologist, Mankato Clinic, Mankato.

are getting into a situation which is very non-Oslerian. It seems that our patient has two disorders. First we have a tumor which on the basis of a palpable pelvic mass, clinical observations and the high testosterone level should be an arrhenoblastoma. The prolactin level has to be explained, and that is the great problem in this case. I believe in addition to an androgen secreting tumor, an arrhenoblastoma, the patient also has a pituitary adenoma which is producing excessive amounts of prolactin although ectopic production of prolactin by the tumor has not been excluded.

Dr. Ohrt: At the time of operation an ovoid tumor mass involving the left ovary was identified and removed. The pelvis was otherwise normal. The tumor had a smooth gray exterior and a yellow, fairly homogenous cut surface (Figure 2). The preoperative workup allowed us the privilege of establishing a differential diagnosis between the various masculinizing tumors which include hilus cell tumor, Sertoli-Leydig cell tumor (arrhenoblastoma), adrenal rest tumor, benign cystic teratoma and possibly granulosa cell tumor^{4,5,6,7} establishing the criteria for providing Dr. Howard with a specific diagnosis at the time of operation. All of the tumors are rare and the criteria for definitive diagnosis and establishing a prognosis would not be at the tip of the tongue of the usual practicing pathologist.



Fig. 2 — Cross Section of 7 cm. Left Adnexal Mass Demonstrating Distinct Capsule and Lobulated Appearance of Cut Surface.

Dr. Howard obtained blood from the left ovarian vein for prolactin determination. Unfortunately the specimen was of insufficient quantity.

The frozen sections demonstrated a spindle cell pattern (Figure 3). They were most consistent with the sarcomatoid variant of a Sertoli-Leydig cell tumor (arrhenoblastoma). None of the characteristics of malignancy were identified. On this basis the uterus

*Gynecologist, Mankato Clinic, Mankato, Minnesota.

and grossly normal right ovary were not removed.

Numerous permanent sections of the tumor demonstrated a great abundance of spindle shaped cells noted on frozen section. We also identified rare Call-Exner vacuoles and very rare luteinized cells in an otherwise sarcomatoid background. These observations caused revision of the original diagnosis to gonadal stromal tumor. The new name did not alter the good prognosis given this patient. I would like now to ask Dr. Howard to give us some followup.

Dr. Howard: She and her husband returned to South America as missionaries shortly after she had recovered from surgery. We recently found out from her mother-in-law that she had a miscarriage four months after the surgery and on August 17, 1980 delivered a 7 lb. 11 oz. son. We can presume that whatever the prolactin levels meant preoperatively that they did not interfere with her ability to carry a successful pregnancy. Also, if a pituitary adenoma was indeed present, we would expect it to become more severe during the pregnancy probably to the point of producing typical symptoms. To our knowledge this did not happen.

Hopefully we will have an opportunity to follow-up on the original studies, both the masculinizing changes and prolactin levels, once she returns to the United States. I would like to ask Dr. Nagel if just high

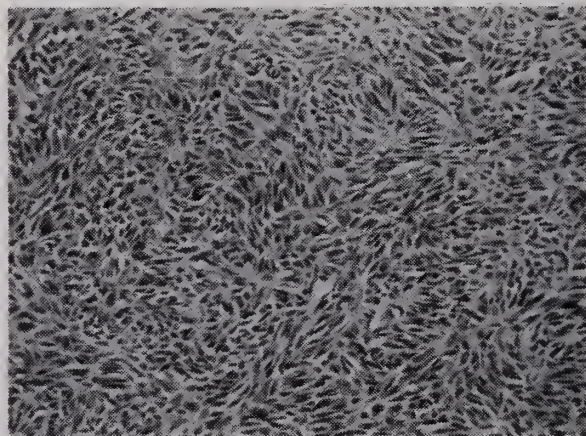


Fig. 3 — Dominant Monotonous Spindle Cell Pattern Comprising the Majority of Sections (x200).

testosterone levels could cause elevation of the prolactin level.

Dr. Nagel: This has not been reported. However, at the University we do have a small number of female patients with aplastic anemia who are placed on large doses of testosterone. The measurement of prolactin prior to and again during therapy might provide an answer to this question.

Dr. Stephen Penkhus*: There are two good

reasons for careful followup of this patient. First her left ovary was removed for a tumor which is histologically benign and clinically usually behaves in the same way. It would still be appropriate to evaluate the opposite ovary and pelvis periodically. I would be very surprised if there was a recurrence unless there was, in fact, granulosa cell tumor which rarely produces testosterone.

The second reason is to followup on the prolactin

levels. It would be important to obtain a serum prolactin level and also perform a radiologic evaluation of the sella to see if there is further anatomic change. A repeat CAT scan with the newer scanners should be capable of identifying a pituitary tumor. She probably has empty sella syndrome accounting for the radiographic changes seen.

FINAL ANATOMIC DIAGNOSIS: Gonadal stromal tumor of left ovary

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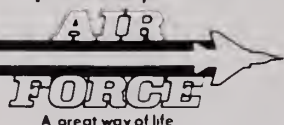
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Mixed Connective Tissue Disease — Does It Exist?

DANIEL HATHAWAY, M.D.*

The term, "mixed connective tissue disease" (MCTD), has been used for many years to describe patients with clinical features of more than one diffuse connective tissue disease (rheumatoid arthritis, systemic lupus erythematosus, progressive systemic sclerosis, myositis). It has been unclear whether overlap syndromes represent: (1) coexistent separate diseases, (2) a broader clinical expression of one disease, or (3) specific disease entities. Many rheumatologists would like to preserve the term MCTD to refer to any patient with overlap features. In 1971, Dr. Gordon Sharp reported 25 patients seen at Stanford University, all of whom had high titers of anti-ribonuclear protein (anti-RNP) antibodies. Twenty-two of the 25 patients clinically had overlap syndromes. Dr. Sharp argued for restriction of the term MCTD to patients with this anti-nuclear antibody.

Clinically, MCTD is a disease of women (80%) with a mean age of onset of 37 (range nine to 80 years). Typical clinical features include polyarthralgias and/or polyarthritis, puffy swelling of the hands, Raynaud's phenomenon, lower esophageal dysmotility, pulmonary disease with abnormalities on pulmonary function testing, and myositis. The arthritis typically involves small joints, is associated with morning stiffness and may or may not be erosive. The puffy hands are indistinguishable from the early edematous phase of scleroderma. Raynaud's phenomenon, esophageal dysfunction, and the abnormalities on pulmonary function studies are all seen in a frequency similar to that of progressive systemic sclerosis. The myositis is identical to polymyositis. Less common features include fever, serositis, lymphadenopathy, and neuropsychiatric complications (typically trigeminal neuralgia). Sharp has emphasized that one of the rarer features of mixed connective tissue disease is renal involvement. When seen, however, it can vary from immune complex glomerulonephritis to severe sclerodermatous kidney disease. Pulmonary hypertension is also a potentially lethal complication.

Laboratory findings are similar among these patients with elevated sedimentation rates, leukopenia, mild anemias, positive rheumatoid factors, hypergamma-globulinemia, and elevated muscle enzymes. Coomb's positive hemolytic anemias and thrombocytopenia are seen, but are unusual. Complement values are usually normal and antibodies to double stranded DNA are

rare. As noted above, by definition these patients have high titers of antinuclear antibodies directed against nuclear RNP. On tissue target FANA, this gives a speckled pattern.

The primary argument for defining MCTD as a separate clinical entity is the impression that it is steroid responsive and that the prognosis is good. This relates directly to the paucity of renal disease. Other investigators agree that patients with high titers of antibodies to RNP develop glomerulonephritis less commonly than typical patients with systemic lupus.

Follow-up on 22 of the original 25 patients described by Sharp, all of whom had disease for greater than eight years, revealed that 14 were living and eight had died. Two deaths were directly related to mixed connective tissue disease and specifically renal involvement. Thus 8% of their patients died of kidney involvement, and there was an overall mortality of 32%. This is a small series and may not be representative. However, it does cast some doubt on the benign nature of this illness. Of the living patients, the inflammatory aspects of their disease such as arthritis, serositis, fever and myositis had become less severe. Presumably these had responded to corticosteroids. However, sclerodermatous changes such as sclerodactyly and esophageal dysmotility were often unresponsive and persisted.

Patients who present with arthralgias, malaise, and vascular instability may clinically evolve into an easily diagnosable rheumatic disease (PSS, SLE, myositis or RA) or develop overlap features. Many of these patients will have a speckle pattern FANA and some will have high titers of anti-RNP antibodies when tested by hemagglutination and immunodiffusion techniques. Specific clinical features such as arthritis, serositis, or renal disease will be treated the same, no matter whether the diagnosis is RA, SLE, or MCTD. One will still start with aspirin and the nonsteroidal anti-inflammatory drugs and give prednisone only for more serious disabling or potentially life threatening problems.

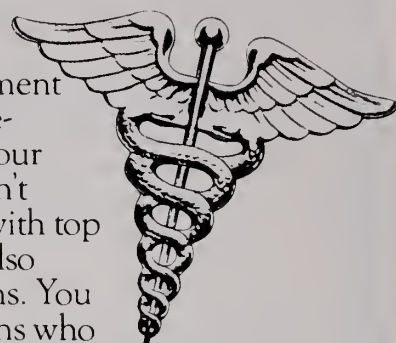
MCTD

1. Polyarthralgias and/or polyarthritis
2. Puffy swelling of hands
3. Raynaud's phenomenon
4. Pulmonary disease with abnormal pulmonary function testing (low Dco)
5. High titers of nuclear anti-ribonuclear protein antibodies (anti-RNP)

*Rheumatologist, St. Paul, Minnesota

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The Impact of a Long-Term Preceptorship on Clinical Confidence of Senior Medical Students

JOHN E. VERBY, M.D.;*† MARK T. SCHAEFER, PH.D.;* and RANDALL S. VOEKS, M.A.*

Self-report questionnaire data was used to assess the clinical confidence of third year medical students participating in a long-term (nine to 12 months) rural preceptorship compared with a like group in a traditional short-term rotational curriculum at a tertiary health care facility. Students on the long-term preceptorship were found to have gained greater clinical confidence to perform in the majority of biologically oriented skills, in a small portion of behaviorally oriented skills and in almost half of related professional skills. The comparison group did not show gains of confidence greater than the preceptorship group in any skill.

THROUGHOUT THEIR educational experience medical students develop diagnostic and procedural skills and the confidence to put them to use. The amount of confidence finishing residents have may be the result of innumerable experiences throughout their four to seven years of medical education. Some of the experiences may be more "confidence-building" than others. A preceptorship experience is one means by which students can integrate previously learned basic scientific knowledge with practical problem-solving applications. This paper documents the effects of a nine to 12 month preceptorship program in developing confidence in a variety of skill areas.

The long-term preceptorship program used to study this issue was the University of Minnesota Medical School's Rural Physician Associate Program (RPAP). This program was established to provide an intensive, long-term, educational experience in needy rural areas for third year medical students with the primary goal of redistributing family and primary care physicians in these areas (Verby, 1977). Approximately four to six months after the students have completed the program they are asked to write an essay about the pros and cons of their RPAP experience. After content analyzing the first three classes it seemed that students consistently stated they perceived themselves as having more clinical confidence than their fourth year peers. This study was conceived to empirically explore such perceptions about professional and clinical confidence.

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The Study

The specific areas assessed included the student's self-perceived degree of confidence in a variety of biologically-oriented procedures and psychosocially-oriented skills (such as medical interviewing). Students participating in the RPAP were compared with another group of third year students enrolled in clinical rotations in the regular curriculum at the University of Minnesota. Our hypothesis was that those students who participated in a long-term preceptorship (hereafter referred to as RPAP) would experience a greater increase in confidence, compared to students taking short-term clinical rotations (hereafter referred to as STR group) in their third year of undergraduate training. Both groups were tested before and after their third year of medical education.

Long-Term Preceptorship Curriculum (RPAP)

The background of RPAP, its development, goals and curriculum are described elsewhere (Verby and Connolly, 1972; Verby et. al. 1974). In brief, the Rural Physician Associate Program is an optional curriculum available to family practice and internal medicine students for the third year (Phase D3). As with other preceptorship programs, it is an opportunity for the students to receive part of their training outside the direct medical school setting under the supervision of practicing physicians. Throughout the year students maintain an intensive educational relationship with the University through a variety of on-site faculty visits from various specialties.

Short-Term Rotational Curriculum (STR)

Students in the regular medical school curriculum who track in family practice and internal medicine likewise begin their clinical training after eight academic quarters. However during their third year

they are most frequently taught in three to six week rotations in various specialty areas.

Subjects

In the RPAP group ($N = 38$), 28 had declared themselves as specializing in family practice with 10 identifying themselves in internal medicine. There were 35 males and three females. The STR group ($N = 60$) was randomly selected from a list of Phase D3 students who were tracking in family practice and internal medicine. The selection process was devised in a manner such that the STR group proportionately matched the RPAP group in specialty distribution. Therefore, in the STR group there were 40 family practice and 20 internal medicine students of which 53 were males and seven were females. The two groups were assumed to be comparable with the exception that the RPAP students volunteered for the program and were therefore self-selecting on that factor. Completion of the confidential fall and spring questionnaires was mandatory for those subjects participating in the RPAP, but not for the STR subjects. A \$10 honorarium was paid to each of the STR subjects for successful participation in both stages. Of the 60 who participated in the fall, 49 responded with complete questionnaires in the spring. Among the remaining 49 subjects who completed questionnaires for fall and spring, there was still the same proportionate number of students tracking in each specialty as in the RPAP group (75% family practice and 25% internal medicine for both RPAP and STR).

Method

The questionnaire was primarily comprised of 54 items which were grouped into the following three major areas of inquiry:

Biologically-Oriented/Medical Procedures and Practices

This area was assessed by the students' responses to 29 items in a Likert-type response scale labeled: (1) Cannot do it, (2) Need some help, (3) Can do it with some supervision, (4) Would like "resource person" there, and (5) Can do it alone. The items consisted of various procedures thought to be necessary in the repertoire of a primary care physician, e.g., "Intubate a patient in preparation for surgery," "Deliver babies," "Do a thoracentesis, paracentesis, or bone marrow biopsy," "Do a complete neurological examination." For simplicity, medical procedures and practices such as these will be referred to as "biological treatment skills."

Behavioral Skills

This area had a similar five point, Likert-type response scale for the question: "How confident are you in your ability to do the following areas of medical interviewing?" The range of responses were: (1) Not at all, (2) Not Very, (3) Somewhat, (4) Fairly, and (5) Extremely. There were 18 items using this scale including the following examples: "Maintain Control of an interview to effectively use time," "Establish rapport," "Assess psychosocial problems and strengths."

Related Professional Skills

By using the same Likert-type response scale as used for Behavioral Skills area, seven items focused on the students' perceived confidence in performing various tasks and procedures related to the day-to-day general professional activities of a practicing primary care physician. The items included the following examples: "Advise the patient on the roles of various allied health professionals at the time of hospitalization," "Charge a patient appropriately for an office visit," and "Provide continuous care for a patient over time in a clinic (from diagnosis to hospitalization to discharge and follow-up)."

Both groups completed the instrument immediately preceding the beginning of the academic year (fall) and again immediately after the end of the academic year (spring). All students responded after nine months even though some students continued their RPAP preceptorship experience to 12 months in length. Tests of statistical significance are used in this report as an indicator of whether a difference between two variables is large enough to be taken seriously or is so small that it is likely to be haphazard.

Results

In reviewing the actual means, it was found that among the pretest scores the STR group had higher perceived confidence on 21 of the 54 items. The RPAP group did not have higher perceived confidence on any item. For 33 of the items there were no significant differences between the groups at pretest. In comparing actual means among the post-test scores, it was found that the above results were largely reversed. On 18 of the items the RPAP group had significantly higher perceived confidence. On only one of the items did the STR group have a significantly higher mean. On the remaining 35 items there were no significant differences in perceived confidence.

It was thought that the most appropriate way of formally analyzing the above data was to compare the

individual's gain in perceived confidence of the two groups on each item. Therefore, in order to assess the degree of Pre-Post change, the difference between the Pre and Post responses was calculated for each item and will be referred to as "gain" scores. A t-test for two independent samples was used to assess the difference between the RPAP and STR groups' gain scores (Nie, et al. 1975).

According to the Table, there were no skills for which the gain for the STR group was reliably higher than the gain for the RPAP group. In contrast, students on the RPAP had a higher gain than the STR group in 26 of the 29 biological treatment skills. For the behavioral skills, the RPAP group had a higher gain on four of the 18 items. The gain for perceived confidence in related professional skills was higher for the RPAP group in almost half of the items (three out of seven items).

To summarize, by the end of their third academic year, those students in the long-term preceptorship program are found to have gained greater confidence in their clinical abilities in the majority of biologically-oriented skills, in a small portion of the behaviorally-oriented skills, and in almost half of the related professional skills.

Discussion

It is puzzling that the RPAP group had significantly lower means on almost one-third of the skills at the pretest. The lack of significant gain among the STR group may partly be due to a suppression effect resulting from a small score range (1-5) on the individual items. In effect, this means the higher scoring STR group had less range over which to demonstrate gains on 21 of the items. Roughly one-third of the findings regarding relative gains of the two groups could be an artifact of this statistical limitation. However, it is clear that the RPAP group not only gained during the assessment period, but had higher levels of perceived confidence on many items at the post-test. In fact, at the post-test the RPAP group had

higher actual means in 18 of the 54 items. The STR group had a higher mean at the post-test on only one item ("Starting IV fluids"), though the RPAP group had a significantly higher gain.

It is quite surprising that the STR group participating in the regular curriculum had no specific gains that were significantly higher than their RPAP counterparts. This finding is perhaps expected for the related professional skills, since the STR group have less autonomy and patient-care responsibility in a tertiary medical facility such as a metropolitan university hospital. However, one would expect that the STR group would increase in confidence in some of the biologically-oriented skills, given that they were participating in 6-week rotations in specialty areas similar to those areas studied by RPAP students.

A few speculations can be made regarding the reasons for such findings in the biological-oriented skill area. They primarily are centered around curriculum differences in length and quantity of exposure to primary care patients.

First, rather than taking six-week rotations in specialty areas, RPAP students spend nine to 12 months in their primary care environment. Such length affords them exposure to continuity of care, which over time allows the students to see the outcome of their procedures with patients who return for care. In a rotation-based curriculum the students are limited in this respect.

Second, the RPAP students have more "hands-on" experience with patients than the STR students. In a recent study by Garrard and Verby (1977) the number of "patient-encounters" were counted for RPAP students and a matched comparison group. Subjects in both groups completed one standardized form for every clinical encounter with a patient over the seven months of data collection. Statistically significant differences were found between the groups on all variables (except one) including: the numbers and kinds of skills encountered, the skills reported, levels of responsibility, continuity of patient care and types of

TABLE
Gain in Perceived Confidence for Students in Long-Term Preceptorships
(RPAP) vs. Short-Term Rotations (STR)

Area of Skill	RPAP Students Having Significantly Higher Gain* (No. of Items)	No Significant Difference Between the Groups' Gain (No. of Items)	STR Students Having Significantly Higher Gain (No. of Items)	Number of Items in Category
Biological Treatment Skills	26	3	0	29
Behavioral Skills	4	14	0	18
Related Professional Skills	3	4	0	7
Total	33	21	0	54

*All significant levels reported have $p < .05$

patients. The exception was the students' perception of whether "the encounter was primarily one of education or service." In terms of the number of patient encounters, RPAP students recorded an average of 344 encounters per student per month, whereas the comparison subjects reported an average of 115 encounters per student per month.

Third, in addition to having more encounters, RPAP students are given more individualized attention and supervised responsibility for patient care. Each student works in a closer one-to-one basis with experienced practicing physicians (averaging 15 years in practice), the majority of which are board certified in their fields of Family Practice, Internal Medicine, Surgery, Pediatrics and others. Also, because of the relatively greater degree of responsibility, RPAP students may be forced to pay more attention to a given procedure.

Finally, the differences may be due to the fact that the procedures described in the questionnaire are focused on actual primary care procedures. Although STR subjects are also tracking in family practice or internal medicine, the kinds of problems and procedures they are exposed to are not necessarily those typically seen in a primary care setting of a rural clinic and hospital. It may possibly be inferred then that RPAP students are more confident in those specific clinical skills relevant to primary care and not more specialized "biological treatment skills."

In sum, the reasons the RPAP students show a greater increase in their perceived confidence in biological treatment skills is possibly because of their

greater exposure to continuity of care, their increased number of patient encounters, their relatively greater amount of responsibility, and their more in-depth exposure to procedures relevant to primary care.

Final Remarks

A few caveats about the meaning of "perceived confidence" are in order. Perceiving one's self to be confident in a particular skill does not necessarily imply a lack of recognition of one's limitations. While confidence grows with experience it presumably follows that a student develops, in a parallel fashion, a growing recognition of a need for even greater skill, thus understanding in a clearer manner his or her actual limitations.

Furthermore, assessing a student's perception of confidence does not imply that his or her actual capabilities are assessed. Confidence is not synonymous with competence. Cognitive competency of both groups is routinely assessed by the only standardized measure accepted, the National Board Scores. Analysis of scores for both RPAP and comparison groups in 1971, 1972, 1973 and 1979 shows there was no statistically significant difference. Therefore, we should assume that "competency" as measured by the National Board scores is equivalent for both groups.

Confidence in one's ability is something that perhaps all physicians develop over time. The focus in this paper has been upon a curriculum strategy that seems to enhance the rate at which such clinical confidence is developed.

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Harold A. Diehl Award

The committee for the Diehl Award given annually by the Minnesota Medical Alumni Association solicits nominations for this award from the physicians of Minnesota. The award is presented to one or more physicians meeting these four major criteria:

1. Preferably an alumnus of the University of Minnesota Medical School.
2. Not engaged in an academic capacity.
3. Has made outstanding contributions to the Medical School, the University, the Alumni, and the community.
4. Has had a relatively long experience in the field of medical science or a related field.

Nominations for the 1982 awards should be sent immediately to:

Konald A. Prem, M.D., Chairman,
Harold A. Diehl Award Committee
Box 395, University of Minnesota Hospitals
Minneapolis, Minnesota 55455
(612) 373-7635

Detailed supporting documents are necessary to consider nominees, but these can be forwarded later.

Letters to the Editor

Dear Editor:

Congratulations for your good work in the October, February and March Minnesota Medicine (Editor's Notebook). Your analysis and conclusions are very sensible. You have correctly identified "The Great Unmentionable," i.e. control of medical practice by non-physicians. I share with you an optimism that doctor-patient relationships can be preserved in the future, and I am not convinced that patients will best be served by "pro-competition" if this means dissolving standards of quality in professional care, or the dissolution of professionals into providers of functional units of care.

Senator Durenberger has emphasized to me the importance of trying to explain and compare health care coverage to consumers. He feels that the medical profession can present information about health care coverage and provide guidelines as to its meaning. He holds, and I think correctly, that the ultimate choice as to the coverage and its cost is up to the individual.

Therefore, can we think of ways in which we can educate consumers about the nature and quality of medical care provided?

Lee Beecher, M.D.
Legislative Representative
Minnesota Psychiatric Society
American Psychiatric Association

Dear Editors:

Your recent series of editorials on competitive medicine is an outstanding review, analysis, and presentation of the current status of medical practice in our community. I can think of no other article that has evoked so much comment in medical staff lounges. To quote the late American philosopher, William Claude Dunkelfield, (W. C. Fields), "You have seized the bull by the tail and faced the situation". It is devastating for physicians to anticipate the dismantling of our system of medical practice that has evolved during the last century and which now provides the best medical care anywhere in the world by misguided Bureaucrats under the guise of cost control.

It is certain that "good" medicine is expensive. Quality and quantity are directly related — to a point. Through PSROs and other self auditing systems, we physicians are learning what that point of diminishing returns is. Physicians are now definitely cost conscious. We have learned that hospital stays can be safely shortened. We have learned that new tests need not be added to old tests to reach medical decisions. We have learned to be prudent in prescribing drugs. We have learned to be prudent in the recommendations for surgery and for other expensive therapeutic and diagnostic modalities.

Nevertheless, the only way that medical costs can be effectively reduced is to reduce services. Our patients will have to learn to be satisfied with less, and we physicians will have to determine what that less can safely be. This, of course, introduces the problem of the liability of under utilization versus the excess cost of over utilization. A happy medium is being found.

Our local HMOs have already learned the bitter lesson of economy and thereby are being found not to be the panacea that they were touted to be. Our IPA survives only by raising rates and reducing services. We have found that physician members must be continuously monitored and controlled. Closed panel HMOs survive by substituting paramedical care for doctor care and by the ability to closely manage their physician employees. Other HMOs survive by being subsidized by the fee for service or indemnity insurance components of their practice.

The fact that industry and labor are vitally interested in medical care as an expense and as

LETTERS TO THE EDITOR

a benefit respectively, as you so clearly point out, portends their increasing involvement in the control of medicine. Hospitals, too, are entering the arena for control in order to insure their own survival.

With this attack on medicine by government, business, labor, insurance companies, hospitals, and by physicians themselves, we are destined to see revolutionary changes in how we practice medicine within the next decade. Your articles serve as prelude.

F. S. Stiegler, M.D.
Minneapolis, Minnesota

Acyclovir Update: Shingles Patients Still Needed

Dear Editors:

We would like to update our recent paper on use of acyclovir (Minnesota Medicine 64:739-743, 1981). On March 30, 1982 topical acyclovir was approved by the FDA for treatment of primary genital herpes in all patients and mucocutaneous herpes simplex infections in immunocompromised hosts. Clinical data suggest that topical acyclovir may be useful for recurrent genital herpes and even oral herpes if applied within eight hours after onset of oral symptoms. Topical acyclovir will not be effective for shingles or chickenpox.

Intravenous acyclovir, which has been shown to be effective for prevention and treatment of mucocutaneous herpes simplex infections in immunocompromised patients and for treatment of primary genital herpes in otherwise normal adults, is still under review, and FDA approval probably is months away.

We thank all physicians who referred shingles patients to us for the placebo-controlled intravenous acyclovir treatment trial. Thirty-one patients participated in our zoster study which now has been completed.

On April 1st we began a placebo-controlled trial of *oral* acyclovir for shingles. Please consider referring new cases of shingles to us for this 10-day trial. Participants must be otherwise normal adults whose zoster rash is not more than three days old. Patients taking immunosuppressive or antiviral drugs cannot be included. Patients must come to the University Emergency Room daily for 10 days. They will incur no cost for participating in this trial and parking will be provided free of charge. To refer patients or for more information, please call our office, 373-8898.

Henry H. Balfour, Jr., M.D.

Bonnie Bean, M.D.

Departments of Laboratory Medicine & Pathology, and Pediatrics
University of Minnesota Health Sciences Center
Minneapolis

Continuing Medical Education

Black Hills Seminar

The Fifth Annual Black Hills Seminar on Advances in Clinical Pediatrics — June 16-18, 1982, at Sylvan Lake Resort, Custer, South Dakota, sponsored by the Department of Pediatrics and Adolescent Medicine, University of South Dakota School of Medicine. Guest faculty include Drs. Hugh Moffett, Jane Schaller, Sylvan Stool and William Strong. For complete conference information contact:

Lawrence R. Wellman, M.D., Program Coordinator, Department of Pediatrics, University of South Dakota, School of Medicine, 1100 S. Euclid, Sioux Falls, South Dakota 57117-5039, 605-339-6578.

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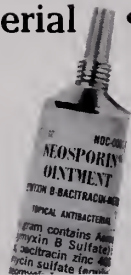
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CONTRAINDICATIONS: Not for use in the eyes or in the external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

WARNING: Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neo-



mycin is possible. In burns where more than 20 percent of the body surface is affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as a failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

PRECAUTIONS: As with other antibacterial preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

ADVERSE REACTIONS: Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.



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Skilled Nursing Facilities and the Medicare Program

FERN ZAPPALA LIANG, M.P.H.* and JESSE J. BARRON, M.D.†

This paper briefly explores selected issues relative to the Medicare program and skilled nursing facilities which surfaced after the introduction of Professional Standards Review Organizations (PSRO) Long Term Care Review in the Minneapolis-St. Paul area during 1980-81. This article is the outgrowth of discussions by a multidisciplinary task force at the Foundation for Health Care Evaluation which was directly involved with the implementation of the Long Term Care Review program.

IN THE SUMMER of 1980 the Foundation for Health Care Evaluations (FHCE), a designated PSRO in Minneapolis, began implementation of a Long Term Care Review program in 30 Twin City area nursing homes with SNF certification and SNF/ICF certification.‡ Freestanding ICFs were not covered by the program. The primary decision and policy making body for this review program at FHCE was the multidisciplinary Long Term Care Committee, along with various Task Forces. The role of the Task Forces was to aid the committee in its decision making, and they were established and disbanded as specific needs and issues arose.

The Long Term Care Review program covered nursing home residents whose care was financed by Medicaid or Medicare. Several questions began to be raised regarding implementation and about the impact of the program on Medicare coverage and reimbursement. In an attempt to resolve these questions the Long Term Care Committee in December, 1980 established the Medicare Task Force. The Task Force was originally charged with explaining Medicare guidelines for eligibility and developing parameters for medical necessity (compatible with Medicare law and requests) for Medicare certified SNFs.

The Task Force began its work in early February, 1981. However, in March, 1981 the Task Force's work was altered by the Long Term Care Committee after formal notification was received from the federal government that FHCE's Long Term Care Review program would be phased out by June 30, 1981. The Long Term Care Committee then asked the Medicare Task Force to refocus its discussions along a broader scale in order to not lose the work they had already done.

*Research Fellow, University of Minnesota, Department of Family Practice and Community Health, Minneapolis, Minnesota.

†Internist, Minneapolis, Minnesota.

‡SNF means a skilled nursing facility as defined by federal regulations; ICF means intermediate care facility.

Instead of developing specific recommendations relative to the Long Term Care Review program the Task Force concentrated its efforts on identifying and defining several issues relative to the Medicare program and skilled nursing facilities.

The section that follows reflects the six major issues that the Task Force identified as important for providers, payors, and consumers involved with the Medicare program in SNFs. The explanation accompanying each issue is meant to serve as a stepping off point for future and more indepth discussions and study. It is also recognized that while each issue is given separate treatment, they are very much interrelated.

Key Issues

Decreasing Bed Availability

Currently in Minnesota there are approximately 89 nursing homes that have SNF beds certified for the Medicare program. These 89 facilities are reported to have a total of 4,006 SNF Medicare certified beds. This number represents 15% of the total SNF beds in the state. This is a decrease from the mid-1970s when the number of facilities with Medicare SNF beds in Minnesota exceeded 100. If the trend toward fewer SNF Medicare certified beds continues in Minnesota, difficulties may arise for consumers and payors, as well as providers. For example, fewer Medicare certified SNF beds could mean longer waiting time for patients coming from acute care facilities. In a study of long term care, a one day census was conducted by the American Association of Professional Standards Review Organizations on September 4, 1980. It was reported that out of 3,509 Medicare patients in Minnesota hospitals, 188 (54%) were waiting for outside placement on that particular day. Nationwide, the study found that 13,683 (66%) out of 205,938 Medicare patients in 4,131 hospitals were awaiting

placement. When these figures are roughly translated into dollars spent by persons waiting for alternative placement, the bill for one day is:

	One day
Minnesota (188 patients)	\$ 40,420.00
U.S. (13,683 patients)	\$2,941,845.00

These figures were arrived at by subtracting the average cost of one day of SNF care from the average cost of one day of hospital care (\$250 - \$35) and then multiplying by the number of patients awaiting placement.

It should be also noted that some waiting may be due to Medicare certified SNF beds being filled with Medicaid residents. Notwithstanding this fact, the problem of bed availability will only become compounded as the number of Medicare certified SNF beds decreases, the eligible population increases, and financial resources become more scarce.

Disincentives For Skilled Nursing Facilities (SNF) to Participate in the Medicare Program

It appears that the reasons why SNFs in Minnesota and elsewhere in the country either do not participate in the Medicare program or only certify a few number of beds are complex. Homes with Medicare beds cite the following reasons for Medicare participation: (a) responsibility to their current residents and their families; (b) prestige; and (c) marketing advantage to the facility. However, strong disincentives appear to be operating which keep the number of Medicare beds small and deter more participation by nursing homes.

1. Additional paperwork — Providers are strongly recommended to do daily charting and are required to provide the fiscal intermediary with weekly documentation about the recipient's condition in the SNF. There are also additional billing forms.
2. Retroactive Denial of Payment — Facilities that have rendered services can be retroactively denied payment.
3. Fear of losing "waiver of liability" — A Medicare certified facility which has a small percent of disagreements over a specified amount of time is given a special status which reduces the risk of payment liability. However, if a facility begins to have too many disagreements they lose this special status, and may be liable for payment. Prior to "waiver" being instituted in the Medicare program the liability for payment was on the consumer.
4. Reimbursement — Payment is often slower than

Medicaid reimbursement by several weeks which could impact on an individual facility's cash flow.

5. Limited coverage — Medicare pays only for skilled nursing services and will not reimburse for "custodial care". Care is considered custodial when it is primarily for the purpose of meeting personal needs and could be provided by persons without professional skills or technical training. For example, help in walking, getting in and out of bed, bathing, dressing, eating, and taking medicine is considered custodial care. Also, a resident assigned to a skilled care classification by their physician may not meet Medicare skilled nursing criteria.
6. Greater Patient Needs — Nursing needs are generally higher for Medicare patients in SNF due to types of care eligible for coverage and greater skilled services needed.
7. Varying interpretation of Medicare coverage among intermediaries in different states. There is some evidence that shows variability of interpretation exists among insurance carriers in different states regarding what is and what is not reimbursable under Medicare.

Multiple Understandings About the Medicare Program

The various parties (i.e., residents, families, physicians, fiscal intermediaries, nursing home staff) that are involved with the Medicare program often have different understandings about covered services, eligibility, reimbursement, rights and responsibilities, etc. While there is a great deal of published information describing the Medicare program and its benefits, there is still confusion concerning coverage and benefits in a SNF.

The recipient and his/her family often assume that the Medicare program makes them eligible for care in a nursing home for up to 100 days with little regard for qualifiers (i.e., minimum 3 day hospital stay, continuation of care, 30 day transfer between hospital and nursing home, skilled care vs. custodial care).

Physicians often advise their elderly patients in the hospital that Medicare will pay for their SNF care for a full 100 days. What is often not conveyed or misunderstood is the fact that Medicare rarely pays for 100 consecutive days of care in a certified SNF bed, and that care that is "custodial" will not be reimbursed. "Skilled nursing care" as defined by Medicare regulations, means care that can be performed only by or under the supervision of licensed

nursing personnel. "Skilled rehabilitation services" may include physical, occupational or speech therapy, if it is under the direction of a doctor. Medicare does not reimburse for a stay in a SNF if skilled nursing or rehabilitation services are required only once or twice a week.

SNF providers and fiscal intermediaries appear to have the most accurate understanding of the Medicare program. This is probably due to their continuous contact and feedback with the program and health care system.

The Medicare program in Minnesota determines the number of days covered based on medical condition; the complete 100 days of coverage cannot be guaranteed. The informational pamphlets appear to be most misleading regarding the 100 days of potential SNF coverage. It is worth noting that 10 years ago, before the custodial care exclusion was instituted, a patient generally received 100 paid days under Medicare.

The chart that follows attempts to summarize some current perceptions about the Medicare program by individual groups.

Perceptions of Four Groups Involved in Medicare
Concerning Key Provisions

	F.L.s	SNFs	M.D.s	Consumers
Coverage	-Skilled nursing services only for restorative care -No custodial care	-Skilled nursing services; variability of interpretation of coverage	-SNF care	-Most nursing home care covered
Eligibility	-3 day hospital stay -Continuation of care and continuity of diagnosis -30 day transfer	-3 day hospital stay -Continuation of care and continuity of diagnosis -30 day transfer	Hospital stay	Hospital stay
Days Paid	Number of days depends on condition	Number of Days depends on condition	100 days	100 days

What the above discussion and chart attempt to point up is the pattern of thinking among individuals involved with Medicare, and that there is not a common understanding about the program, its benefits, rights and responsibilities, due process mechanisms, etc.

Multiple Interpretations of Medicare Coverage

There is concern among providers, consumers, and payors about interpretation of Medicare coverage. There appears to be variability among Medicare carriers and PSROs in the U.S. regarding interpretation of Medicare coverage. For example, insurance

carriers who are Medicare intermediaries do not have uniform coverage policies regarding interpretation. One carrier may tend to reimburse for more Medicare days than another for the same condition. Also, PSROs conducting Long Term Care Review do not use the same level of care criteria.

Multiple interpretations are in part due to the decentralized system by HHS of administering the Medicare law. Medicare benefits are administered predominantly by individual insurance carriers using manuals and memorandums, and PSROs using general guidelines. There is little strict regulatory administration or standardized criteria which has led to a flurry of court cases in order to assure a more equitable system.

The Tables attempt to show the variability that currently exists among selected states in Medicare coverage and utilization.

Transfer Trauma For Nursing Home Residents

In order to receive benefits under the Medicare program in a nursing home a resident must, as a general rule, be placed in a Medicare certified SNF bed. The reason for this requirement is to assure appropriate care and minimum standards. Also, these beds are usually located in a separate section within a SNF.

Given the small number of Medicare certified beds in Minnesota and the increasing elderly population difficulties may arise for recipients and providers regarding resident bed transfer. For example, a recipient is subjected to bed changes as his/her condition changes and/or payment source changes. Studies have shown that such bed changes both within and outside the facility may be detrimental to the individual, emotionally as well as physically.

The provision of services in only Medicare certified beds was recently addressed in the court case of Wright vs. Califano. The court's decision indicated that Medicare benefits and services can be provided under certain circumstances in a non-certified bed. This case opens the way for further discussion of questions such as:

- Why certify beds vs. certifying residents?
- Why are only specific beds certified vs. a given number in a SNF facility when the Medicare and Medicaid certification regulations are identical?

Transfer From One Payment Source to Another

Due to differences in coverage and methods for calculating reimbursement between Medicare and Medicaid it is not unusual for an individual eligible for Medicare SNF care in Minnesota to participate from

the beginning in the Medicaid program only. As a result, Medicare benefits are not being used to their fullest extent by the elderly or the state. A SNF provider may view the transfer as not worth their effort when the result may be only a few days of coverage or retroactive denial of payment. This can have significant impact on state spending, and this becomes increasingly important in times of budget cutbacks.

Conclusion

As a result of the Task Force's deliberations regarding the Medicare program and SNFs two general thoughts evolved regarding the key issues. First, in order to facilitate understanding about Medicare for consumers, physicians, SNF providers and others involved with the Medicare program better materials

and methods should be developed to ensure clear and accurate information about the program, its benefits, eligibility requirements, coverage, due process mechanisms, etc. To date there appears to be severe gaps in this area.

Second, the Social Security Administration and Congress need to seriously address the issue and impact of not only unclear and ambiguous information about the Medicare program, but also the administration and varied interpretations of the program as it currently exists. Health care professionals and consumers involved with the Medicare program on an active basis could provide valuable insights about the strong disincentives which plague the system at present.

TABLE 1

Basic Demographic Information Relative to Medicare SNFs

State	Medicare Enrollees (Part A)*	SNF Medicare Admissions**	# Certified Beds**	# Certified SNF Facilities †
Minnesota	501,497	7,500	4,006	89
Iowa	408,619	4,200	808	33
Missouri	689,385	7,200	3,889	50
North Dakota	85,197	1,600	3,980	57
South Dakota	96,419	800	589	9
Nebraska	215,410	3,000	998	18
Kansas	319,428	2,200	1,881	27
Pennsylvania	1,631,014	34,300	26,011	258
New York	2,302,549	60,300	66,872	526
Ohio	1,261,124	29,100	22,361	226
California	2,519,398	105,500	88,942	974
Florida	1,632,892	27,100	18,395	180
Michigan	1,002,652	25,100	22,671	264

*Figures provided by HCFA Health Statistics, Baltimore, Maryland.

†Social Security Bulletin, 1977-79, Annual Statistical Supplement.

TABLE 2

Medicare Utilization in SNFs in Selected States (1979-80)

State	Total \$ Reimbursed*	Covered Days/ 1,000 Enrollees †	Total* Covered		Covered Days/ Certified Beds
			Days in SNF	\$/Covered Day	
Minnesota	\$ 4,385,000	141/1,000	70,607	\$62	18
Iowa	4,634,000	212/1,000	86,828	\$53	107
Missouri	10,425,000	279/1,000	192,263	\$54	49
North Dakota	1,005,000	265/1,000	43,833	\$23	11
South Dakota	412,000	150/1,000	14,474	\$28	26
Nebraska	2,468,000	268/1,000	57,784	\$43	58
Kansas	1,762,000	137/1,000	43,625	\$40	23
Pennsylvania	25,101,000	437/1,000	713,799	\$35	27
New York	23,743,000	240/1,000	553,676	\$43	8
Ohio	24,650,000	523/1,000	659,113	\$37	29
California	46,515,000	348/1,000	875,594	\$53	10
Florida	19,449,000	378/1,000	617,095	\$32	36
Michigan	14,500,000	451/1,000	452,661	\$32	20
U.S.	\$332,183,000		8,156,301	\$40	

*Figures provided by HCFA Health Statistics, Baltimore, Maryland.

†Total days ÷ total enrollees X 1,000

Minnesota Medical Association

What is the Physicians Metro Health Force?

GEORGE C. LOHMER, JR.* and CAROL J. KAEMMERER†

THE PASSAGE OF the Health Planning Act in 1975 created a network of federally-funded local, state and national planning agencies to control health care costs. Since that time, a tidal wave of regulations and guidelines has been developed by the federal government and implemented at the local and state level. These regulations and guidelines were an attempt to solve some real cost problems in the health care system.

Two years before the passage of the Health Planning law, after an unsuccessful attempt to influence the health plan developed by the Metropolitan Health Board, physicians in the Twin Cities metropolitan area decided to act. Meetings were held, a consultant retained, and decisions were made to organize physicians in direct parallel with the federally-funded planning organization. Where there was a Metropolitan Health Board, physicians formed the Physicians Metro Health Force; where there was an HSA Task Force on Perinatal Care, physicians formed their own Perinatal Task Force. Physicians Health Forces were created in other areas of Minnesota as well.

The 13 members of the Physicians Metro Health Force Board are appointed by the four metro area medical societies. Representing Hennepin County are Drs. A. Stuart Hanson, Edward A. Johnson, F. Donald Kapps, Melvin E. Sigel, Walter L. Wilder, Robert E. Wilson (Vice-Chairperson); from Ramsey County, Drs. John B. Coleman, John A. Culligan, Thomas A. Love (Chairperson); from Scott-Carver, Dr. William E. Scheidt, and from Wakota, Drs. Harvey J. Frank and John J. Plunkett. There is a vacancy on the Board for an additional representative from Scott-Carver Medical Society. Physician members of the Metropolitan Health Board are ex-officio members of the PMHF Board. Serving in that capacity are: Drs. Paul F. Bowlin, Lawrence Kaplan, and Joseph C. Kiser of Hennepin, and Roger S. Colton of Ramsey.

The PMHF has influenced many of the policies and guidelines of the Metropolitan Health Board and has heightened and focused the awareness of physicians to the potential of planning agencies. It is now shaping its own policy regarding how health planning should be undertaken in the future.

What is Certificate of Need? Why was It Repealed?

Minnesota's Certificate of Need (CON) law, passed in 1972, was designed to restrict the unnecessary expansion of hospitals, reduce duplication of services, and limit the acquisition of expensive medical equipment. The law was the primary regulatory tool for Health Systems Agencies (HSAs) to implement their plans. Projects reviewed by the HSA are compared against pre-determined criteria, and a recommendation for approval, denial, or modification is made to the Commissioner of Health. The Commissioner makes the final decision. A Certificate of Need is required for a hospital to receive a license to operate the service in question. Amendments to the law have incorporated free-standing surgical centers and under some circumstances, purchases of diagnostic and therapeutic equipment by a physician.

Many attempts have been made to assess the effectiveness of CON laws. The most frequently cited criticism of the CON program is that it has not reduced

capital investment in hospitals, but rather has altered the type of capital expenditure made from the addition of hospital beds to the creation of new services and the acquisition of equipment. Numerous studies have failed to make a definitive case for CON as a cost-effective tool.

In the spring of 1981, the MMA undertook a study of the effectiveness of Minnesota's CON law and concluded that it had not accomplished its objectives. During the current legislative session, the MMA successfully sought the repeal of Minnesota's Certificate of Need legislation. The MMA stated that CON was inconsistent with a price-competitive approach for health care and has not been proven effective. The MMA went on to state that the law has been in effect for ten years locally and nationally, and the onus must now reside with the proponents of the law to prove its worth.

The CON law will be repealed on March 15, 1984, and in the interim changes have been made to reduce the impact of the law on health care providers.

*Director, Department of Health Planning, Minnesota Medical Association.

†Assistant Director, Department of Health Planning, Minnesota Medical Association.

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Pre-Moistened Hemorrhoidal/Vaginal Pads

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Once pain and inflammation subside, for dual action recommend regular ANUSOL[®]—to maintain patient comfort—and TUCKS[®]—to maintain patient anorectal hygiene.

* Meeting of Am Soc Colon / Rectal Surgeons, May 1980.

** Based on total prescriptions filled for hemorrhoidal preparations during the first three quarters of 1981. The National Prescription Audit, IMS America Ltd, Sept 1981.

* 1981 data from leading marketing research organization.

ANUSOL-HC[®] Suppositories/ ANUSOL-HC[®] Cream

Before prescribing, please see full prescribing information.

A Brief Summary follows:

Indications and Usage: Anusol-HC Suppositories and Anusol-HC Cream are adjunctive therapy for the symptomatic relief of pain, itching and discomfort in external and internal hemorrhoids, proctitis, papillitis, cryptitis, and fissures, incomplete fistulas, pruritus ani and relief of local pain and discomfort following anorectal surgery.

Anusol-HC is especially indicated when inflammation is present. After acute symptoms subside, most patients can be maintained on regular Anusol[®] Suppositories or Ointment.

CONTRAINDICATIONS

Anusol-HC Suppositories and Anusol-HC Cream are contraindicated in those patients with a history of hypersensitivity to any of the components of the preparations.

WARNINGS

The safe use of topical steroids during pregnancy has not been fully established. Therefore, during pregnancy, they should not be used unnecessarily on extensive areas, in large amounts or for prolonged periods of time.

PRECAUTIONS

General

Symptomatic relief should not delay definitive diagnoses or treatment.

Prolonged or excessive use of corticosteroids might produce systemic effects.

If irritation develops, Anusol-HC Suppositories and Anusol-HC Cream should be discontinued and appropriate therapy instituted.

In the presence of an infection the use of an appropriate antifungal or antibacterial agent should be instituted. If a favorable response does not occur promptly, the corticosteroid should be discontinued until the infection has been adequately controlled.

Anusol-HC is not for ophthalmic use.

Pregnancy

See "WARNINGS"

Pediatric Use

Care should be taken when using the corticosteroid hydrocortisone acetate in children and infants.

DOSEAGE AND ADMINISTRATION

Anusol-HC Suppositories—Adults: Remove foil wrapper and insert suppository into the anus. Insert one suppository in the morning and one at bedtime for 3 to 6 days or until inflammation subsides. Then maintain comfort with regular Anusol Suppositories.

Anusol-HC Cream—Adults: After gentle bathing and drying of the anal area, remove tube cap and apply to the exterior surface and gently rub in. For internal use, attach the plastic applicator and insert into the anus by applying gentle continuous pressure. Then squeeze the tube to deliver medication. Cream should be applied 3 or 4 times a day for 3 to 6 days until inflammation subsides. Then maintain comfort with regular Anusol Ointment.

NOTE: If staining from either of the above products occurs, the stain may be removed from fabric by hand or machine washing with household detergent.

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Minnesota Medical Association

from

Division of Socio-Economic Affairs

Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Charles W. Wiger, Director, Department of Legislative Affairs

Department of Medical Services and Research

New MMA Ad Hoc Committee on Health Maintenance Organizations (HMOs)

The Twin Cities is unique, nationally, for the high concentration of Health Maintenance Organizations (HMOs) that exist within a relatively small geographic area. The HMOs, as organizations, differ in method of providing health services by being characterized as either staff model (closed panel where the plan decides what physicians patients will see), group practice model (enrollee chooses to receive services at specific facilities from a list of participating physicians), or an Individual Practice Association (IPA). With regard to IPAs, the AMA describes them generally as "organizations of physicians who agree to provide a defined set of medical services to people who voluntarily enroll and pay a predetermined monthly fee." In Minneapolis, the Physicians Health Plan (PHP) is an example of an IPA.

Seven HMOs exist in the Twin Cities. They are: Coordinated Health Care of St. Paul (CHC-SP), Group Health Plan, Inc., MedCenter Health Plan, Physicians Health Plan, and SHARE Health Plan. The following HMOs are located in out-state Minnesota: Central Minnesota Group Health Plan (St. Cloud), Community Health Center, Inc. (Two Harbors), and Group Health Association of Northeastern Minnesota.

None of the 10 Minnesota HMOs operate exactly alike. Because of that, physicians' offices often struggle with claims problems, communication problems, and reimbursement issues alone — physician office (or clinic) versus the HMO.

As a response to this situation, the MMA Committee on Medical Service formed an Ad Hoc Committee on HMOs to discuss the existing administrative problems that appear to be common to a number of doctors' offices and to discuss strategies and solutions for resolving the problems.

The Ad Hoc Committee met, for the first time, on March 25, 1982. A variety of concerns were discussed. The most urgent concern was establishing a formal liaison between the HMOs and the MMA. Elizabeth E. Payne, M.D. is chairperson of the Ad Hoc Committee and will be providing the Committee on Medical Service with recommendations from the first Ad Hoc Committee meeting.

Members of the MMA are invited to forward questions, concerns, and comments about HMOs to the Ad Hoc Committee in care of the Minnesota Medical Association.

Department of Legislative Affairs

The 1982 legislative wrap-up edition of "Physicians Legislative Bulletin" was recently mailed to the MMA membership and Auxiliary. A three part series in MINNESOTA MEDICINE will focus on (1) new laws of interest to medicine, (2) key bills not becoming law and (3) anticipated issues at the 1983 Legislature (see page 316, MINNESOTA MEDICINE for the first part of series). A Reader Survey form included with the "Bulletin" allows members to offer suggestions on improving our legislative effectiveness. Additionally, members may request a copy of new laws and bills.

The Department of Legislative Affairs is now busily preparing for next year's session. Key projects include as follows:

- Preparing a legislative/congressional district listing of MMA members pursuant to the new reapportionment plan. The listing is to be used for the MMA legislative network and MINNPAC.
- Setting up meetings with interested county medical societies, specialty societies, clinics and hospitals. The purpose of such meetings is 1) to discuss the 1982 legislative session, 2) to get input regarding legislative and general concerns, and 3) promote MINNPAC liaison activities.
- Strengthening liaison and input on key federal legislative issues.
- Assessing and refining the MMA's legislative contact network (state and federal).
- Developing the 1983 MMA legislative program. Input will be solicited and presented to appropriate MMA committees and the Board of Trustees.
- Organizing and conducting regional physician-auxiliary-legislator meetings regarding MMA legislative program.

MMA PROPOSALS ENACTED

Certificate of Need Act Repealed — HF 1799 (Swanson)/SF 1794 (Solon) Chapter 614

Responding to the MMA's top legislative priority, plus additional support from the Minnesota Coalition on Health Care Costs and the Citizens League, the Legislature overwhelmingly repealed the Certificate of Need Act, effective March 15, 1984. The MMA vigorously supported immediate repeal, but concern over loss of federal funds plus pressure from some hospitals prompted legislators to adopt the future date. Effective immediately, however, a certificate of need will not be required for:

1. Purchase, lease or acquisition of diagnostic and therapeutic equipment which requires a capital expenditure of \$400,000 or less.
2. Any expansion of the scope or type of an existing health service.
3. Construction or remodeling unless the capital expenditure exceeds \$600,000.

Voluntary Price Disclosure

Substituting competition for a regulatory approach, the new law gives the Commissioner of Health the authority to encourage price publication and reporting by hospitals and health providers. The MMA supported this provision and is currently developing a plan to address the voluntary effort by physicians. The Commissioner will report on the voluntary effort by providers to the Legislature by January 2, 1983. If the Commissioner determines that the effort by a provider group is not satisfactory, a mandatory system can be imposed on March 1, 1983. The mandatory system would require the Commissioner to develop lists of specific procedures and services for each provider group. For physicians, price lists or a notice of the availability of price lists would be required to be posted in each clinic. For hospitals, diagnostic-specific prices for hospitals in excess of 100 beds would be required.

Report on Health Planning's Future Role

Since federal financial support of the state's seven H.S.A.s is evaporating, lawmakers required that a report on the future of health planning in the state be made to the Legislature by January 2, 1983. The report is to address alternative organizational arrangements and funding sources which could maintain statewide or statewide and regional participation in a state health planning system.

One proposal would have created a single state planning process, repealing the authorization of regional offices. Legislators were reluctant, however, to repeal certificate of need and eliminate regional health planning in one major effort.

Pre-School Screening Act Revised — HF 1555 (McEachern)/SF 1502 (Dietrich) Chapter 548, Omnibus School Aids Bill

Responding to the recommendations of the MMA Subcommittee on Screening, the Legislature made significant changes in the state's Pre-School Screening Act. After extensive debate, lawmakers agreed to:

1. Delete the following mandatory components: nutritional and physical assessments.
2. Delete the following optional components: laboratory tests and dental assessments.
3. Add the following component, as per the MMA's recommendation: assessments of height, weight and blood pressure.
4. Allow school districts to offer additional components, but no state aid will be paid for additional components.
5. Reduce state aid to a maximum of \$15 per child.

In light of the Legislature's cutback on pre-school screening, an excellent opportunity exists for expanding the Pre-school Medical Survey of Vision and Hearing program, which is sponsored by the Minnesota Society for the Prevention of Blindness.

Next February, the Legislature will probably readdress pre-school screening. The law requires that the State Board of Education, in cooperation with the Commissioner of Health, files a report to the Legislature on the results of the screening program in accomplishing the purposes of the Act. It's anticipated that certain nursing groups will want to reinstate the deleted components and increase the appropriation.

Joint Underwriting Association Act Extended to 1988 — HF 1552 (L. Carlson)/SF 1479 (Luther) Chapter 374

Originally enacted in 1976 in response to the medical malpractice insurance crisis, the Joint Underwriting

Association Act provides standby coverage for health care professionals if such coverage isn't available on the open market. Based on a model bill developed by the American Insurance Association, the law was extended in 1978 and 1980. A temporary Act faces expiration this year. The MMA told legislators that the Act is an appropriate safeguard for both providers and consumers of health care. Responding to medicine's concerns, lawmakers extended the Act to 1988.

Dangerous Look-Alike Drugs Treated Like Controlled Substances — HF 1573 (Swanson)/SF 1618 (Frank) Chapter 599

Minnesota closes a loophole in the prosecution of drug dealers on August 1, 1982. After that Minnesota treats the manufacture, sale or delivery of non-controlled, non-prescription substances as the sale of the actual controlled substances if the non-prescription product is passed off or made to look like the "real" thing. Law enforcement officials have been frustrated after setting up elaborate schemes to track down suspected drug dealers, only to find on analyzing the substances confiscated during an arrest that the products had the shape, color and markings of actual controlled substances, but in fact were combinations of common cold preparations containing caffeine, pseudoephedrine and phenylephrine. Prosecutions can now take place under penalties of the controlled substances law. The MMA proposed several provisions to bring the bill in conformity with the AMA model bill, including an exemption for physicians using placebos, and supported passage of this important law.

Drug Paraphernalia Penalties Adopted — HF 1758 (Kelly)/SF 1759 (Hanson) Chapter 557

The U.S. Supreme Court decided in February that states do not act improperly in protecting its young people from the dangers of drugs and the paraphernalia used to produce, test, administer and enhance the effects of abused drugs. Minnesota responded by passing a bill (worked on for three years) prohibiting the sale, use, possession or manufacture of drug paraphernalia. Such acts are a misdemeanor. It is also a misdemeanor to advertise the sale of drug paraphernalia. Delivery of drug paraphernalia to a person under 18 is a gross misdemeanor.

Sale of Pet Skunks Banned After 1985 — HF 849 (Reif)/SF 1443 (Setzepfandt) Chapter 591

Dramatic increases in the incidence of rabid skunks coupled with the treatment of over 25 people in 1980 to 1981 for exposure to suspected rabid skunks served as the justification for banning the sale of domestic skunks as pets. The law does not prohibit the isolated possession of skunks, but the authors hope public education and lack of skunk availability in pet stores will all but eliminate this serious health hazard. Minnesota is a leading state in exporting skunks for domestic use, but in recent years many states, urged by the Center for Disease Control, have been banning the importation of pet skunks. While the bill forces about six domestic breeders out of business, the trend across the country indicates the approaching demise of their industry.

Drinking Drivers Face Increased Penalties, Stepped up Law Enforcement — HF 1484 (Vanasek)/SF 1457 (Davies) Chapter 423

Over two dozen bills considered by House and Senate Judiciary Committees as a solution to the devastating problem of drinking drivers resulted in "committee" bills being passed. MMA testified and supported many of the law's provisions which take effect April 1, 1982. On that date:

- Police can arrest drinking drivers without probable cause. If an officer suspects intoxication, a driver can be asked to take a breath test and arrested if the driver fails the test.
- Penalties for first offenses remain at up to 90 days in jail and a \$500 fine. However, repeated events within five or ten year periods constitute a gross misdemeanor with a punishment of up to one year in jail and a \$1000 fine.
- An additional penalty, loss of driver's license, becomes increasingly stiffer with each repeated offense. For a first offense the license is revoked for 30 days. For the second offense within five years the license is revoked for one year and the driver must successfully complete a treatment or rehabilitation course. Third and fourth offenses carry one and two year revocations plus the inability to have the license reinstated without retesting.
- Blood test evidence no longer requires the in-person testimony of the physician performing the test. Certified copies of the report are sufficient, but defense attorneys can compel the testimony.

Additional parts of the law take effect July 1, 1982 and result in automatic revocation of the driving license if a driver refuses to take or fails a blood alcohol level test. Also, in July, police will be allowed to begin issuing warnings to drivers with blood alcohol levels between 0.07% and 0.1% (The legal intoxication level is 0.1%.) Two warnings within two years will result in orders to undergo alcoholism evaluation. Due to costs, a final provision will not take effect until July 1, 1983. At that time all drivers arrested on suspicion of intoxication will be taken to

detoxification centers or alcohol rehabilitation centers for evaluation.

Voluntary Reporting By Physicians Of Patients Having Significant Impairment Affecting Their Ability to Drive — HF 1523 (Byrne)/SF 1456 (Stumpf) Chapter 479

Sponsored by the MMA, the bill originated when Steven Fisher, M.D. called the MMA and expressed concern about potential liability to physicians for reporting, or failing to report, a patient with a significant impairment affecting his ability to drive. Responding to this concern, representatives of the MMA Resource Group on Drivers License Review met with key legislators. Ultimately, a new law passed containing the following provisions:

- A physician who diagnoses a condition which will “significantly impair the person’s ability to operate safely a motor vehicle may voluntarily report the person’s name and the other information relevant to the condition” to the Commissioner of Public Safety.
- Upon receiving the report, the Commissioner shall require the person to be examined.
- A physician reporting in good faith is immune from any liability for making the report. Further, no cause of action may be brought against a physician for not making a report.

The new law is effective August 1, 1982.

Maternal and Child Health Advisory Task Established — HF 1794 (Wynia)/SF 1794 (Spear) Chapter 431

The new law directs the Commissioner of Health to establish and appoint a maternal and child health advisory task force. Supported in concept by the MMA Ad Hoc Committee on the Maternal and Child Health Block Grant and other health groups, the task force is to perform the following duties:

- Review and report on the health care needs of mothers and children throughout the state of Minnesota.
- Review and report on the type, frequency and impact of maternal and child health care services provided to mothers and children under existing maternal and child health care programs, including programs administered by the Commissioner of Health.
- Establish, review, and report to the Commissioner a list of program guidelines and criteria which the task force considers essential to providing an effective maternal and child health care program to low income, high risk patients.
- Review staff recommendations of the Department of Health regarding maternal and child health grant awards before the awards are made.
- Make recommendations to the Commissioner for the use of other federal and state funds available to meet maternal and child health needs.
- Make recommendations to the Commissioner of Health on priorities for funding the following maternal and child health services: a) prenatal, delivery and postpartum care, b) comprehensive health care for children, c) adolescent health services, d) family planning services, e) preventive dental care, f) special services for chronically ill and handicapped children and g) any other services which promote the health of mothers and children.
- Make recommendations to the Commissioner of Health on a process to distribute, award and administer the maternal and child health block grant funds after July 1, 1983.

The task force will consist of fifteen members who will provide equal representation from 1) professionals with expertise in maternal and child health services, 2) representatives of local health boards and 3) consumer representatives. The MMA is now seeking representation on the task force.

Governor’s Council on Health Promotion and Wellness Established — HF 2062 (Laidig)/SF 1837 (Knutson) Chapter 453

Established as the continuation of a privately funded effort initiated by Governor Al Quie, the Council is to prepare biennial reports on the state’s health. The Council will provide assistance to community groups to promote wellness programs, sponsor programs to positively affect the quality of life of Minnesotans, promote health and wellness among state employees and study government policies and practices that interfere with healthy lifestyles. Due to the budget constraints, no general fund monies were appropriated, but the Council received authority to continue seeking private monies.

Physicians Must Report Reye’s Syndrome Cases to Health Department — HF 1839 (Evans)/SF 1673 (C. Peterson) Chapter 419

Effective March 16, 1982 all cases of Reye’s Syndrome must be reported to the Health Department for further

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reporting to the Center for Disease Control. Reported incidence of Reye's Syndrome peaked in 1980 with 27 cases, dropping off in 1981 to seven cases. The Minnesota Mrs. Jaycees, supported by the Minnesota Region National Reye's Syndrome Foundation, urged adding the disease to the mandatory reporting list to assure that all cases are identified. Proponents also hope that increased publicity about the disease will alert parents and physicians to early detection of this severe disease. The MMA supported the law which ceases to be effective upon publication of a rule on Reye's Syndrome reporting.

Attorney's Fees Allowable in Frivolous Actions — HF 560 (Voss) Chapter 601

After August 1, 1982 any party to a civil action may request the court to award attorney and witness fees if a claim or defense known to be frivolous is asserted. The award is also available if the party committed a fraud on the court or used the process to delay or harass. Protection is granted for parties making claims or defenses not existing in law if the claim or defense is supported by good faith argument. The MMA looks at this law as another provision to allow physicians to reduce their professional liability.

Other Proposals Enacted

Several Medicaid Changes Made: Feds Consider Drastic Moves

"Creative" alternatives to increase Medicaid costs resulted in incentives for recipients and providers of Medicaid services. No payments to hospitals, nursing homes nor individual providers were changed, but legislators sought to increase the use of alternatives perceived to cost less, such as daycare for mentally ill and mentally retarded and HMOs for acute care. Third Special Session budget cuts resulted in one major change for physicians' drug prescribing habits for Medicaid recipients.

OTC, Other Drugs Dropped by DPW, Others May Be Added to Formulary — Chapter 2, Third Special Session

Claiming a need for rapid implementation of a drug formulary, the Legislature excluded non-prescription drugs except for antacids, acetaminophen, family planning products, aspirin, insulin, prenatal vitamins, and vitamins for children under the age of seven; nutritional products; anorectics; drugs for which there is no federal funding (DESI); and drugs for which medical value has not been established. Other drugs may be added to the "no payment" list as the Department of Public Welfare staff determines the need. Deleted drugs do not need to meet requirements of the Administrative Procedures Act. Formulary Committee members continue to have input and opportunity to "review and comment" on final action of the Commissioner — Chapter 562, HF 1946 (Rees)/SF 1838 (Lindgren) — but decision making can be without provider consultation. (See DPW Physician Bulletin, #47, March 1982.)

Payments to pharmacists shift from a variable fee to a set fee. Payments also will be made on the basis of generic equivalent costs unless physicians write "DAW" on the Rx blank. Physicians should expect calls from pharmacists asking for prescription alternatives to disallowed OTC drugs.

HMO Care Promoted for Medicaid Recipients — HF 2188 (Brandl)/SF 1771 (Berglin) Chapter 640

To increase the number of Medicaid recipients using HMOs (currently about 400), DPW will pay 5% more of the county share of costs for any newly eligible recipient enrolled in an HMO after July 1, 1982. Medicaid recipients choosing an HMO will be guaranteed six months eligibility (although average current length of MA eligibility is 14 months) and a recipient refusing to use an HMO in counties where the option is provided will be required to pay DPW between \$1.00 and \$19.00 per month as a "co-insurance" fee. The MMA stated its support for maintaining the recipient's free choice of health care provider, but spoke against provisions which subsidize one system over another. Recipient groups opposed the coercive nature of the co-insurance provision as well, stating that HMOs do not provide the comprehensive services often needed by the handicapped, mentally ill and elderly. Another provision of the bill revoked the 8% cap on the increase in HMO charges and allows DPW to pay HMOs up to 85% of the average monthly fee for service payments. Provisions to implement a case manager system for Medicaid recipients were removed from the bill after objections by DPW and allied health care providers over physician control of the system.

Preadmission Screening Extended to Patients Discharged From Acute Care Facilities — HF 2063 (K. Clark)/SF 1910 (Berglin) Chapter 455

Claiming the need to conform to federal guidelines to qualify for federal alternative care grants, the nursing home preadmission screening law was amended to require all patients entering a nursing home who are now eligible, or

within 90 days of admission to a nursing home becoming eligible for MA payments, to be screened by a county welfare department team for proper placement. Recipients must be offered alternatives to nursing home care which would cost as much or less than the nursing home monthly care. A recipient may refuse the DPW determined care level (on advice of a physician, if necessary) and may not be denied payment. If a recipient does not participate in the screening, MA payments terminate. Opponents of the measure, including the MMA, challenged the assertions of the Metropolitan Senior Federation and other proponents of the bill that all recipients must be DPW screened. Suggestion was made that in hospitals with JCAH approved discharge planning, DPW teams should defer to existing hospital screening teams. County officials question the ability of their overloaded public health nursing staffs to do an effective job in this area.

More Medicaid Squeeze in 1983? Yes, If Federal Program Advances

President Reagan continues to offer ways to decrease the federal share of Medicaid, which currently pays 60% of Minnesota's Medicaid bill, and he proposes making the entire payment for Medicaid out of the federal budget and shifting AFDC (medical care and cash grants) and food stamp programs to state funding. The Welfare Department scenario indicates drastic reduction in Minnesota's ability to provide alternative services (drugs, vision care, dental, nursing home and other non-physician services) if this occurs. Acute care hospital and physician services will continue as mandated, but payment levels may decrease again.

Optometrists Allowed to Use Certain Drugs; Mandatory Patient Advice to Seek Physician Care — HF 497 (Greenfield, Buzz Anderson)/SF 709 (Dicklich) Chapter 388

A compromise finally agreed to after several months of negotiations between representatives of ophthalmology and optometry, the new law provides as follows:

- Authorizes optometrists to use the following topical ocular drugs: commercial preparations of proparacaine 0.5%, tetracaine 0.5%, benoxinate 0.4%, phenylephrine 2.5% or less, hydroxyamphetamine up to 1%, tropicamide up to 1% and cyclopentolate up to 1%.
- Requires optometrists using such drugs to obtain a certificate from the Board of Optometry. Certification is granted only after course work in pharmacology, completion of a CPR course and development of a plan for emergency referral if adverse reactions occur.
- Prohibits optometrists from treating signs or symptoms which may be evidence of disease.
- Requires optometrists to inform patients to seek evaluation by a physician when a patient has signs or symptoms which may be evidence of disease.

In view of the compromise package that was supported by organized ophthalmology, the MMA did not actively lobby against the final bill. Recognizing that all of the states bordering Minnesota have "drug" laws (as do a majority of states), medicine was pleased to see the tight restrictions placed in the law, and the unprecedented, strong wording regarding practice prohibitions and patient advice.

Wrongful Life/Wrongful Birth Actions Prohibited — HF 1532 (O'Connor)/SF 1461 (Olhoft) Chapter 521

Physicians may have an improved professional liability picture as the result of a tort reform bill pushed by Minnesota Citizens Concerned for Life. The law prohibits legal actions called wrongful life or wrongful birth actions, thereby preventing a child or parents from suing the physician for allowing the child to be born defective. No action has yet been brought in Minnesota, although several cases around the country have resulted in multi-million dollar judgments against physicians. Despite arguments of the bill's proponents that the measure will result in fewer abortions because fewer physicians will feel "compelled" to discuss prenatal screening and possible abortion with the parents, the MMA feels that the legal and ethical obligation to inform a woman of all treatment alternatives remains. The physician can then counsel against abortion depending on the physician's personal beliefs. The law attempts to preserve all tort actions for negligence except for wrongful life and wrongful birth, but ambiguities in this "savings" clause will likely need clarification by the Supreme Court.

Allied Health Professionals Included in Two Year Statute of Limitations — HF 793 (Hokanson)/SF 1015 (R. Peterson) Chapter 546

The new law extends the statute of limitations for malpractice actions (physicians currently at two years) to all allied health professionals. The MMA didn't oppose the measure, but monitored it closely since professional liability proposals usually engender amendments. As expected, attempts were made to change the bill, including 1) redefining when the statute commences tolling from the time of last treatment to the time of discovery, and 2)

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mandatory \$150,000 professional liability coverage (no exceptions) for all health providers. Responding to professional liability concerns raised by the MMA, legislators didn't adopt amendments adverse to medicine.

Civil Commitment Procedure Changes Significant — HF 1499 (Clawson)/SF 1459 (Spear) Chapter 581

Minnesota revolutionized the civil commitment process in the 1982 session. In the works for almost six years, the bill as passed requires determinate commitments of up to six months, renewable under certain conditions for up to 12 additional months, for persons committed as mentally ill and chemically dependent. Persons committed as mentally ill and dangerous are still subject to indeterminate commitment as well as the mentally retarded, provided the mentally retarded person's commitment is reviewed periodically.

Most significant for physicians are changes relating to 1) the definition of examiner for the purposes of commitment petitions and reviews under the act, 2) access to medical records, 3) procedures for emergency holds, and 4) new commitment procedures including prepetition screening teams. The MMA supported the concept of determinate commitment and many MMA suggestions are incorporated in the law, but our serious concern in the area of examiners was not met. After August 1, 1982 a psychologist testifying alone can support a petition for commitment. Rural legislators, supported by the Minnesota Psychological Association, complained of lack of available psychiatrists. It is the MMA's opinion that many county attorneys and judges will now stop using psychologists as they have in the past to support the testimony of a physician, and rely solely on physician examiners, thus, frustrating the efforts of the psychologists who view this as a major advance legislatively and professionally.

Access to Medical Records Permitted

Also, under the new law, a patient subject to a petition or committed under the law will have complete access to his medical record, as it relates to the commitment. The law waives the provisions of the access to medical records law allowing a physician to withhold information if the physician determines the health of the patient is at risk if information is disclosed. The MMA supported this provision conditioned on the fact that the records of only the current commitment are available to the patient. It remains to be seen how patient advocates and attorneys will attempt to use this provision.

Emergency Hold Procedures Modified

Emergency holds may still be placed on patients and continued in effect for up to 72 hours excluding Saturdays, Sundays and holidays. Unless a petition for commitment has been filed and the court holds a preliminary hearing and orders the patient held for a longer period, however, the patient must be released after the emergency hold period. The patient may, obviously, always consent to a voluntary commitment. A major feature of the new law is this preliminary hearing which must be held within the 72 hour period. This is a court proceeding. The proposed patient must be represented by an attorney. The court will order the hold if it finds that serious imminent physical harm is likely to occur if the patient is not held. This procedure has been in use in Hennepin county commitments for about one year under a State Supreme Court order. It is now extended to all other counties.

In addition to the new preliminary hearing, commitment procedures may become more rigid in certain counties. Commitment hearings must take place in a courtroom or courtroom-like setting. Each county must now have a prepetition screening team to conduct a preliminary investigation and make a recommendation on the need for commitment. The screening team must conduct interviews with the proposed patient and others and will have access to all medical records currently in a hospital or treatment facility. The county attorney is required only to support a petition on recommendation of the screening team. However, the county attorney may proceed if the petitioner disagrees with the screening team recommendation and can convince the attorney to commence the commitment hearings.

A comprehensive analysis of the bill, including discussions of changes in definitions of persons subject to commitment and changes in standards of proof, is available from the MMA for physicians involved in commitment petitions. All persons currently committed and those proceedings which take place before August 1, 1982 continue under current law. Persons in commitment on that date must have their commitment status reviewed prior to February 1, 1984.

Breast Cancer: Physician Required to Disclose Effective Alternatives and Risks — HF 1572 (Byrne)/SF 1504 (Berglin) Chapter 504

The new law requires a physician to disclose all effective alternative treatments and the risks associated with those

treatments to patients having breast cancer. Amending the Patients Bill of Rights — which applies to patients and residents of health care facilities — the law states as follows:

“Every patient or resident suffering from any form of breast cancer shall be fully informed, prior to or at the time of admission and during her stay, of all alternative effective methods of treatment of which the treating physician is knowledgeable, including surgical, radiological or chemotherapeutic treatments or combinations of treatments and the risks associated with each of those methods.”

Citing a similar law in California and Massachusetts, proponents — mainly women personally affected — argued that the medical community needs to be more responsive in recommending alternatives to surgery. Acknowledging that this is an emotionally charged issue, the MMA and other groups representing medicine told policy committee members that:

- Existing law already requires that a physician disclose to his patient “complete and current information concerning his diagnosis, treatment, and prognosis in terms and language the patient can reasonably be expected to understand”. (Patients Bill of Rights, M.S. 144.651)
- The court’s standard for “informed consent” already requires a physician to disclose alternatives to a patient.

Committee members generally agreed that the bill might not change anything, but that the publicity generated was helpful by generating awareness of the issue. Responding partially to MMA concerns and thereby softening medicine’s opposition, the measure was redrafted so that disclosure isn’t required for “medically viable” alternatives (a much broader standard).

Minnesota Veterans Home Residents Granted Free Chiropractic Care — HF 1702 (G. Anderson)/SF 1897 (Bertram) Chapter 503

Responding to the relentless lobbying effort of Bob Fitzgerald — a Minneapolis chiropractor who represents the International Chiropractic Association — lawmakers passed the new law which provides as follows:

- Requires the Commissioner of Veterans Affairs to provide chiropractic services to residents of the Minnesota Veterans Home.
- Directs that chiropractic services be provided as funds permit.
- Provides that the Commissioner employ or contract with a chiropractor to provide such services.

A representative of the Commissioner testified that chiropractic services are already available, but said that about \$1,000 would be dedicated (if funds permit) for a contract with a chiropractor. Well known by legislators, “Doctor Bob” has worked on the proposal for several years and brought endorsements this session from a variety of veteran’s groups.

Cover Photo

“Spring”

Steven W. Richards, M.D., a third year resident in Internal Medicine at the University of Minnesota, took the cover photo in Southeastern Minnesota in the Spring of 1979. He used a Nikon F2S camera with Kodachrome ASA 64 film.

In July, Dr. Richards will be a fellow in Pulmonary/Infectious Disease at the University. He is married to a woman physician also in the Internal Medicine Program at the University of Minnesota.

Both he and his wife are interested in tennis and cross country skiing.

Dr. Richards informed the Editors that this is the ninth shot in a series of pictures taken by him in the area around Winona.

MINNESOTA MEDICINE Change of Address

Please change your records to list our address as 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414.

We are still receiving mail at our old St. Paul Address, and the mail will no longer be forwarded to our present address.

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

May, 1982

10-14 Family Practice Review; U of M Medical School; Holiday Inn, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-15 12th Annual Meeting; Great Plains Organization for Perinatal Health Care; Radisson South Hotel, Mpls.; CONTACT Kimberly Bardis, Regional Coordinator, GPO, 2nd Floor, 3036 University Ave. S.E., Mpls., MN 55414, 612/373-5718.

19 Cardiology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

19-21 Current Concepts in Radiation Therapy; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 State-of-the-Art in Clinical Anesthesiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

24-26 Topics and Advances in Pediatrics; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

26-28 Biotechnology Symposium; U of M Medical School; Mayo Memorial Auditorium; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

27-28 MMA SCIENTIFIC PROGRAM; Radisson South Hotel, Mpls.; CONTACT Teresa L. Rogstad, 2221 University Ave. S.E., Suite 400, Mpls., MN 55414, 612/378-1875.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

2-4 Coronary Heart Disease Workshop; U of M Medical School; Spring Hill Center, Wayzata; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-5 Strategies and Controversies in Primary Care Medicine; St. Paul-Ramsey Medical Center and U of M Medical School; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

9-11 Musculoskeletal Tumors; U of M Medical School; Sheraton-Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

11-12 Clinical Hypnosis; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

12 Eye Surgery; Lakes Area Health Services; Radisson Arrowwood, Alexandria; CONTACT Joseph Burdeau, 111 17th Ave. E., Alexandria, MN 56308, 612/762-0609.

14-16 Advances in Vascular Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Psychiatry; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

29-30 Disabled Adolescent; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

July, 1982

9-10 Malnutrition: The Clinician's Role (Women in Medicine Conference); U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21 Orthopedics; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

August, 1982

17 Ob/Gyn; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

25 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

September, 1982

1-3 Annual Ob-Gyn Seminar; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-11 Controversies in Medicine; St. Louis Park Medical Center; SLPAC; CONTACT Elaine Anderson, SLPAC, 5000 West 39th St., Mpls., MN 55416, 612/927-3350.

13-17 Skeletal Radiology (Annual Radiology course); U of M Medical School; West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

15-17 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health and Safety; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

17 & 18 Current Clinical Cardiology; United Hospitals; Radisson Plaza, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith, St. Paul, MN 55102, 612/298-8558.

23-25 Trauma Seminar; U of M Medical School; Hennepin County Medical Center; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

24 Annual Meeting; Northwestern Pediatric Society; Chanhassen Dinner Theatre; CONTACT Stephen Boros, M.D., 612/298-8864.

29-30 Cardiovascular Disease — 1982; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-October 2 Comprehensive Review of Infectious Diseases; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

October, 1982

6-8 Internal Medicine Review; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7-8 Adolescent Medicine and Health Care; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9 Current Trends in Ophthalmology — 6th Annual; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700, ext. 1117.

14-15 Cancer Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

15 Update on Poisoning; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

18 & 20 Basic Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Emergency Medicine; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

20-22 Clinical Microbiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

20-23 Principles of Colon and Rectal Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 Emergency Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; Rodeway Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

24 ENT for Primary Care Physicians; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

25-27 Clinical Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-30 Clinical Laboratory Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

November, 1982

4-5 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

For further information on future CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.



MINNPAC

Medicine's Voice in Government

MINNPAC (Minnesota Medical Political Action Committee) is now setting up meetings throughout the state in an attempt to stimulate medical community involvement in the 1982 elections. Competing interest groups — most notably, chiropractors — have launched aggressive "PAC" (political action committee) membership drives to help finance the campaigns of their legislative allies. As MINNPAC has repeatedly emphasized, the outcome of proposals to be considered by the 1983 Legislature is largely determined by commitments and relationships established during the campaign. The earlier one is involved, the more influence you are likely to have.

The MINNPAC Board gives a SPECIAL THANK YOU to the following Diplomat (\$250) and Sustaining (\$150) members for their generous support:

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Please check your county medical society for the MINNPAC membership.

Code:

D - Diplomat (\$250)
 S - Sustaining (\$150)
 R - Regular (\$75)
 A - Associate (Less than \$75)
 Ax - Auxiliary (\$25)
 X - Pledged to join

County Medical Society	December 1981						April 1982					
	R	D	S	A	Ax	X	R	D	S	A	Ax	X
Headwaters	7			1			7			2		
Red River Valley	10		1				10		4			
Hubbard Co. (Upper Miss.)	3						0					

MINNPAC

<u>County Medical Society</u>	<u>R</u>	<u>D</u>	<u>S</u>	<u>A</u>	<u>Ax</u>	<u>X</u>	<u>R</u>	<u>D</u>	<u>S</u>	<u>A</u>	<u>Ax</u>	<u>X</u>
Clay-Becker	10		3				10		3			
Park Region	32			2			13		1	2		15
West Central (Less Big Stone)	6						5					
Range	25		1	2	1		27	1		1		
St. Louis	84		1	1	2		8	1	1			1
Aitkin Co. (Upper Miss.)	1						1					
East Central	14				2		6					3
Stearns Benton	59		1	6			54		1	1		1
Wright County	8		2				4		1	1		
Upper Miss. (Less Aitkin & Hubbard)	17			2			10					
Hennepin	383	5	21	21	1		188	1	13	3		2
Ramsey	107	1	11	8	1		85	1	7	3		1
Scott Carver	9			1			1	1				
Wakota	14				1		14		1	1		
Blue Earth County	24	1	2	2			17		3	1		
Blue Earth Valley	11			1			9					10
Brown County	8		1				4					
Camp Release Dist.	1						1					
Lyon-Lincoln	5						5					
McLeod County	12						10					
Mid Minnesota	42		4		1		8		2	1	1	
Nicollet LeSueur	2						0					
Sibley County	3						2					
Southwestern	11		1	1			24		1			
Waseca	4		1				6					
Big Stone (West Central)	2						2					
Freeborn	6			1			5					
Goodhue	15			1			8					
Mower	11		1	1			10			1		
Rice	3			1			2					
Steele	6				1		4				1	
Wabasha	3						1					
Winona	10			2			10			1		
Zumbro Valley	24		1	21	1		14		4			
	992	7	52	75	11		505	5	42	18	10	25
TOTAL -	1137						605					

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Classified advertising rates are forty (40) cents a word; minimum monthly charge \$10.00, key number, \$2.00 additional. Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, 2221 University Ave. S.E., #400, Minneapolis 55414.

Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

OBSTETRICIAN/GYNECOLOGIST—Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

ALLERGY AND ENT

specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

NEUROLOGIST AND PSYCHIATRIST to join a multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality benefits. Send curriculum vitae and references to P. K. Olson, M.D., 101 Willmar Avenue, Willmar, MN 56201.

OPPORTUNITY FOR QUALIFIED physician in Otolaryngology and Orthopedic Medicine. The clinic is also recruiting for a country family physician (2) for an outlying branch clinic in New Richland, Minnesota and Alden, Minnesota. The Albert Lea Clinic, P. A., is a 17 man multispecialty group in primary and secondary care fields. Financial rewards are exceptional and practice challenges very attractive. Negotiated top salary first year. Senior physician participation beginning at the end of the first year and incentive income distribution plan. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. This is a choice practice in an exceptional place to live. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

(continued on page 328)

Classified Advertisements

(continued from page 327)

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

FOR SALE 3 br house, owner financed contract, 30 yr 12% 5 yr balloon, down payment negotiable, \$80,000 monthly payment about \$800. Provides large tax shelter. 201 S Lexington Pky, St. Paul 451-1778, 455-8184.

WANTED — Family practitioner to associate with another family physician. Opportunity to develop professionally in an area of physician need. No investment required, starting income guaranteed. Clinic facilities attached to accredited hospital. Located in stable agricultural area. Consulting services readily available through S. W. Healthcare Cooperative. Contact J. F. Kegel, M.D., 507-629-3012, or Omer J. Eischens, Adm., 507-629-3200.

PHYSICIAN RETIRING at age of 75 from solo practice July 1, 1982. Northern Minnesota Community, 12,000 people. There is a clinic group of 7 in town, and 1 Board Surgeon. Modern 100 bed hospital in area with latest facilities including Intensive Care Unit. If interested in taking over practice, please contact me as to terms. John K. Butler, M.D., 1214½ Cloquet Avenue, Cloquet, Minn. 55720, Telephone: 218-879-4649.

PHYSICIANS ASSISTANT — Seeks employment with Family Physician or General Surgeon. Will graduate from A.M.A. accredited, W.S.U., Kansas, P.A. program July 30th, 1982. Extensive background as First Assistant with General Surgeons. C/V on request. Contact Mark Shoemaker, 7000 E. Kellogg, Apt. D, Wichita, Kansas, 67207. Telephone (316) 684-1242.

FAMILY PRACTITIONER wanted to join (4) Family Physician and (2) Internist group in western Minneapolis suburb, near Lake Minnetonka. Prefer board certified or eligible applicants. Send references and curriculum vitae to Diane Theis, Clinic Manager, Mound Medical Clinic, Ltd., 2208 Commerce Blvd., Mound, Minn. 55364.

PHYSICIAN ASSISTANT-CERTIFIED, RELOCATING to Minneapolis-St. Paul area. Two years experience as House Officer and Assistant Director of P.A. program. Seeking employment in private practice, clinic, or institution. Visiting area May 20th through 24th. M. Modak, 441 East Overlook, Eastlake, Ohio 44094. Home (216) 953-8248; Work (216) 352-3361.

OFFICE EQUIPMENT: examining tables, matched cabinets, adjustable stools, surgical instruments, laboratory equipment and more. O. Wandke, M.D. 104 Lake Park Place, Fairmont, Minnesota 56031 507-235-5626.

FAMILY PRACTITIONERS AND INTERNISTS — 40 bed hospital on the shores of Lake Superior in the Upper Peninsula of Michigan seeks additional staff in Family Practice and Internal Medicine. Year round recreational area with opportunity for challenging medical practice. Office building, staff and equipment negotiable. Contact William Hermann, Executive Vice President, Munising Memorial Hospital, Route 1, Box 501, Munising, Michigan 49862.

UROLOGIST — 23 doctor multispecialty group. For more information, call or write: Jerry Knuesel, Administration, Winona Clinic, Ltd., Winona, MN 55987. Tel. (507) 454-3680.

CLINIC PRACTICE FOR SALE — St. Paul Industrial and Gen. Surgery. Many years estab practice — former Emerson Clinic — Will introduce buyer to Ins firms, Indust. plants, Bargeline operators plus many private pts including 3rd generation families. Complete office equip, supplies, files, patient records, extensive P.T. equip, x-ray, lab & pharm. Newly decorated & carpeted waiting room, 6 rooms including emerg. room. Modest down payment — long term financing 10% int. E. C. Emerson, M.D. 806 E. 7th St., St. Paul, Mn. 55106 — 612-776-2744.

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Also for the treatment of documented *Pneumocystis carinii* pneumonia. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

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1. Rubin RH, Swartz MN. *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file. Medical Department, Hoffmann-La Roche Inc.

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Vol 65
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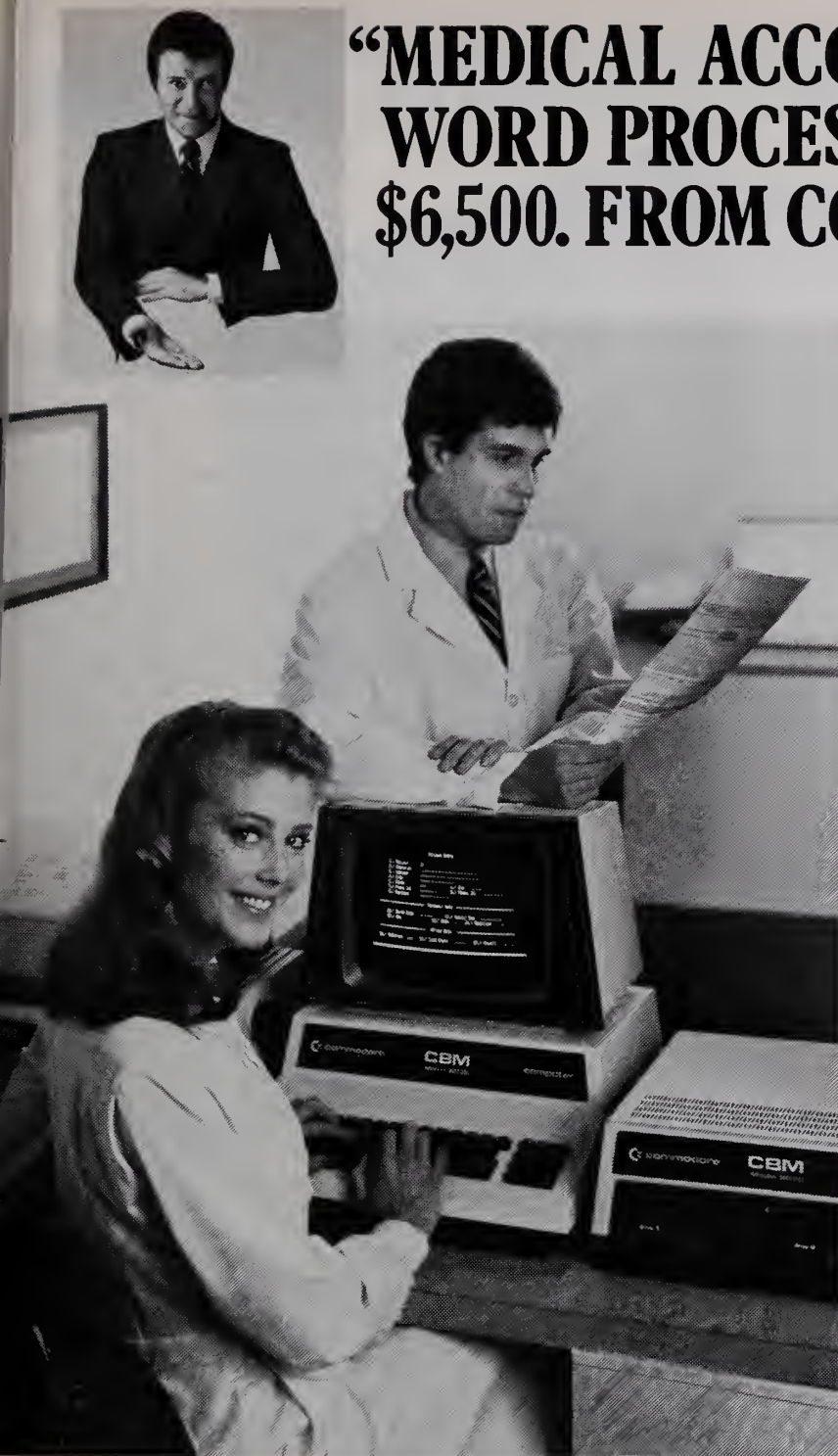
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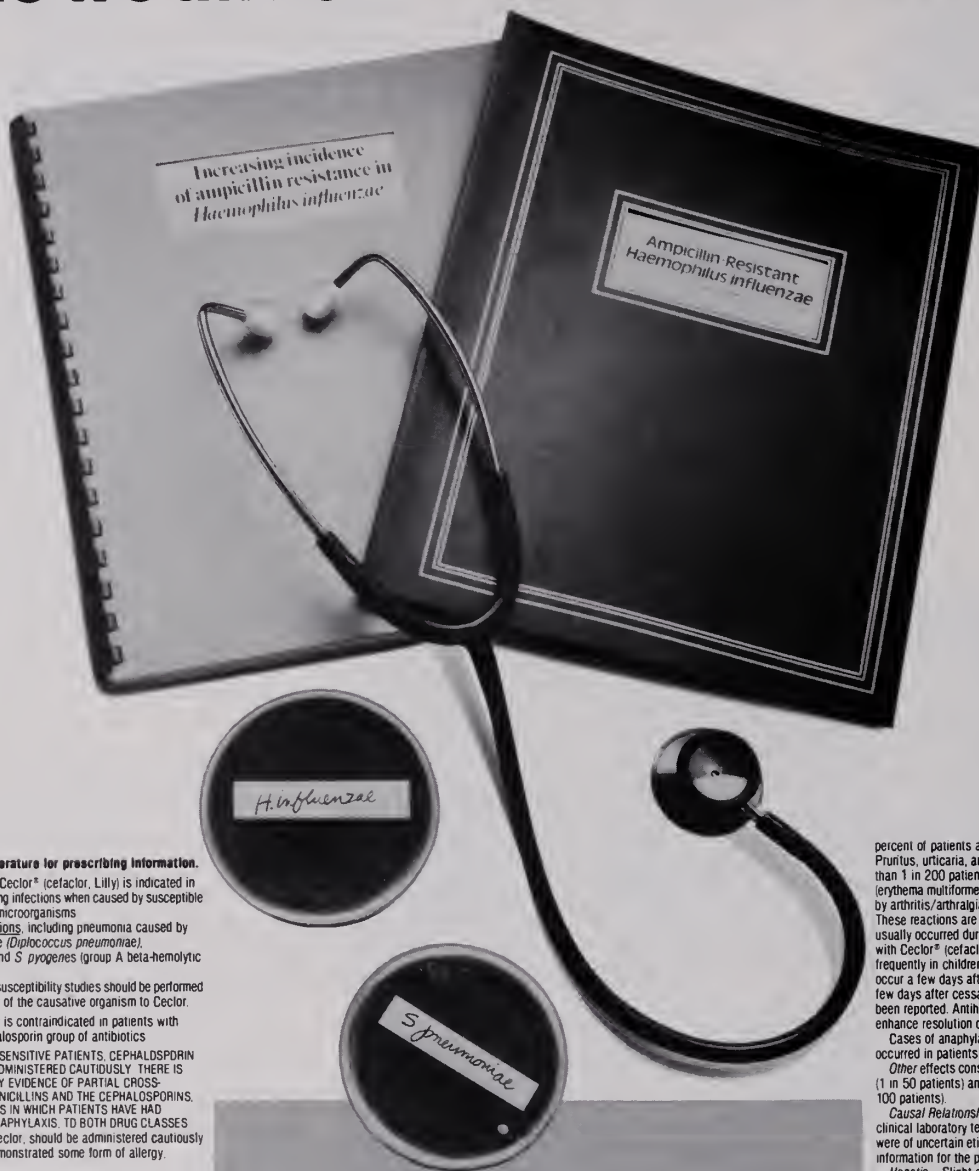
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An added complication... in the treatment of bacterial bronchitis*



Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Cefclor® (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

Contraindication: Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Precautions: If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy: Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy: Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefclor.

Hypersensitivity reactions have been reported in about 1.5

percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefclor® (cefclor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain: Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic: Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic: Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal: Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). (1002818)

*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefclor.¹⁻⁵

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.⁷

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President's Letter



As your Association's President-elect, this past year was a period of education and preparation as I watched our Association go through change and growth. It was a time of mixed emotions; honor, a touch of temerity, but mainly one of confidence and faith that our members and staff shall continue their utmost to promote the health concerns of the people of Minnesota.

The President's Letter offers each president an opportunity to exchange thoughts with the members. The letters will be different from month to month. At times they will be informative, at times philosophical and at times exhortative to exert leadership in matters that demand unified Association action.

As the year begins it seems appropriate to set some goals. Top priority should go to an increased membership, an always illusive goal. Lagging membership, at all levels of organized medicine, is a serious and recognized fact, a problem which will be addressed in a future letter. Another priority should be our efforts in health planning. We are all aware that federal attempts to regulate health planning have not been successful, and we can now look forward to more voluntary efforts on the local level. It is imperative that we become involved in the federal block grants of the states. I am happy to state that already our Medical Association has formed a task force relative to maternal and child health care, and we should be prepared to continue to provide our expertise to the State Board of Health in all of the future federal block

grants.

My relationship with my predecessor was most unusual. It has been an almost lifetime experience. Dr. Charles McCarthy and I attended the same high school, the same pre-med college, and were fraternity brothers at the University of Minnesota Medical School. Similarity however ends abruptly, for Charlie was always one year ahead of me.

In addition, it has been my pleasure to observe Dr. McCarthy over the past eight years as a member of the Board of Trustees, and last year, as President of the MMA. He has always carried himself with dignity, was always fair and even tempered; and his alert mind readily bore to the heart of each issue. His contributions to MMA are immeasurable, and his counsel will surely be sought in the coming year.

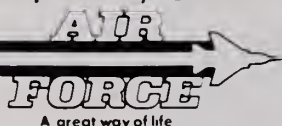
To quote E.B. White, "The only sense that is common in the long run, is the sense of change — and all instinctively avoid it." As much as we may want to avoid change, we will see changes in the next decade in the field of medicine, changes that were unthought of simply a decade ago. We as an organization must face change. I have the utmost confidence that the loyal members of MMA and our excellent staff are equal to challenges that face us.

A handwritten signature in dark ink, reading "Severin H. Koop". The signature is fluid and cursive, with the first name "Severin" being more prominent.

Severin H. Koop, M.D.
President
Minnesota Medical Association

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Torsion of the Testis and its Appendages

KRISHNA VEERARAGHAVAN, M.B.B.S., M.S.;* BENJAMIN P. CASS, M.B.B.S.* and A. S. CASS, M.D.*

Torsion of the testis is an emergency medical condition requiring immediate reduction to save the testis and prevent subsequent atrophy. An aggressive policy of immediate exploration of the unilateral acute scrotum in patients under 40 years of age was instituted in an attempt to improve the salvage rate of the acutely torsed testicle. Ninety cases of torsion of the testis and twenty-two cases of torsion of the appendages were surgically treated from 1969 to 1979. With acute torsion of the testis the immediate salvage rate of the testis with orchiopexy was 76%. The presence of a normal testis to palpation on long-term follow-up was found in 69%.

TORSION OF THE testis is a urologic emergency requiring prompt surgical treatment to salvage the involved testis. Immediate exploration can save the testis and reduce the incidence of subsequent atrophy. A review of the literature in 1964 revealed that the loss of the testicle from "Castration by Neglect" to be 80% from immediate orchiectomy and another 10% from subsequent atrophy.¹ Delay in instituting the appropriate treatment is due to the mistaken diagnosis of acute epididymitis which results from the pain and tenderness permitting only a superficial examination and not allowing a definitive diagnosis. A low index of suspicion exists amongst many examining physicians who believe that torsion is a rare entity.

In this series all patients under forty years of age with unilateral acute scrotum of less than three days duration (with few exceptions) were explored in an attempt to improve the salvage rate of the testis and to reduce subsequent atrophy. Those with symptoms and findings consistent with recurrent or intermittent torsion were operated electively. Most appendiceal torsions were explored with the presumptive diagnosis of a torsed testicle.

Material

Between January, 1969 and December 1979 ninety consecutive cases of torsion of the testis and twenty-two cases of torsion of the appendages were surgically treated at St. Paul-Ramsey and Hennepin County Medical Centers. Recurrent torsion occurred in 15 of the 90.

Results

Age

Most reports indicate that torsion of the testis has a

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Supported by Medical Education & Research Foundation, St. Paul and Minneapolis Medical Research Foundation, Minneapolis, Minnesota.

peak incidence around puberty with a smaller peak around the first year of life. The peak incidence in our series occurred between 10-19 years (42 cases) with 37 cases between 20-29 years. Three cases of torsion were seen between 30-39 years (Table 1).

TABLE 1
Age Incidence of Torsion

	Testis	Appendages
0-9 Yrs.	8	1
10-19	42	16
20-29	37	4
30-39	3	—
>40 Yrs.	—	1
	90	22

In reports of torsion of the appendages limited to children, torsion of the appendage was found to be more common than that of testicular torsion.^{2,3} Most series confirm this to be a disease in adolescents and 16 out of 22 of our cases occurred in the age group 10-19 years. No cases were seen in the neonatal period and one case was seen beyond 40 years.

Side

The recent literature points out a slight left-sided predominance with torsion of the testis. The present series shows a slight right-sided predominance. Two cases of sequential bilateral torsions were seen — both had undergone previous orchiectomies due to a mistaken diagnosis of hematocele and were later found to have contralateral findings of torsion with classic Bell-Clapper deformity. The lower incidence of sequential bilateral torsion in this series contrasts sharply with the 5-7% recorded in the literature⁴ and was due to the policy of immediate contralateral exploration and orchiopexy. No cases of concurrent bilateral acute testicular torsion were seen.

Skoglund⁵ in a review of the literature on 244 cases of torsion of appendages found both sides to be equally involved. Present series showed that two-thirds of the

cases occurred on the left side. Bilateral torsion, reported to be less than 1% in the literature, was not encountered.

Pain

In patients with testicular torsion the pain was scrotal in 79 (87%), inguinal 16 (17%), abdominal in 28 (31%) and few with pain in more than one area mentioned above. A painless mass was noted in a neonate with torsed testicle. The pain could be atypical exemplified by one patient who had a preliminary urogram to exclude urolithiasis. The onset of pain was sudden in 60 (66%) and gradual in 23 (25%).

In patients with torsed appendages the pain was scrotal in 21 (95%). The onset of pain was sudden in 13 (59%) and gradual in eight (36%).

Other Symptoms

With torsion of the testis previous episodes of scrotal pain, lasting from a few minutes to a few hours, and of varying intensity were elicited in 32 (35%). The pain resolved spontaneously. This significant piece of information was elicited only after careful questioning since in most this had occurred several months or years before, except in one who volunteered the information readily as he had been advised surgical therapy during an earlier episode of scrotal pain. Nausea and vomiting were noted in 22 (24%) and 24 (26%) respectively. The paucity of major voiding symptoms was in conformity with other reports.

With torsion of the appendages seven (31%) recalled prior episodes of pain on the affected side.

Physical Findings (Table 2)

In patients with testicular torsion the torsed testicle was normally descended in 83 (92%), undescended and inguinal in one (1%) and position not recorded in six (6%). Scrotal skin was erythematous and edematous in 10 (11%). Advanced skin changes usually indicated poor salvageability of the testis. The involved testicle was found to be swollen 65 (72%) and tender in 50 (55%). Epididymal tenderness was recorded in 19 (21%). The contralateral testis was noted to be in horizontal lie in three patients, retractile in two and atrophic in two.

With torsion of the appendages testicular tenderness

was noted in 17 (77%), swelling in 11 (50%) and scrotal skin erythema in seven (31%).

Laboratory Findings (Table 2)

Torsion of the testicle is usually not attended with a febrile illness as shown by present series where 79 (88%) of patients had a temperature $<100^{\circ}$ F. The white cell count was normal in 51 (57%). Torsion of the appendages follows the same pattern.

Urinalysis showed no significant pyuria and in those where urine cultures were obtained, none showed any significant bacterial growth.

Findings at Exploration

The classic Bell-Clapper deformity resulting from a capacious tunica with its high insertion and secondary redundancy was recorded on the involved side in 34 patients (38%). An anomalous mesorchium was found to be a contributing factor in 16%. Detorsion, either spontaneous or during anesthesia, was noted to have occurred in 33% of patients at the time of exploration and was diagnosed by a congested reddened testis, spermatic cord and epididymis. One patient with recurrent torsion was noted to have adhesions between the testis and the tunica vaginalis.

Similar anatomic abnormalities (Bell-Clapper in 24 and anomalous mesorchium in 7) were noted in 34% on the contralateral side.

Fate of the Testis in Relation to Duration of Symptoms and Degree of Torsion

The degree of torsion was recorded to vary between 180° and $>720^{\circ}$ (Table 3). Sonda and Lapides⁶ studied this parameter in both animal models and men and reported that three to four complete turns produced permanent changes within the testis after two hours whereas one turn was tolerated for 12 hours, but necrosis resulted in 24 hours. Two patients in our series underwent orchiectomy even though explored within the first 6 hours — one was a newborn explored for a non-tender scrotal mass and found to have torsion, the other was an adolescent with a 540° torsion. As the duration of symptoms progresses the chances of salvaging the testicle get slimmer. In those series where exploration was delayed beyond 48 hours,

TABLE 2
Comparison of Physical Findings and Investigations on Admission of Patients
with Acute Torsion of the Testis and Testicular Appendages

	SITE		SCROTAL SKIN				TESTIS		EPIDIDYMIS		TEMPERATURE			WBC		URINALYSIS			URINE CULTURE		
	TESTIS												per	cuMM							
		Normal	Undes- cended	Eryth	Edema	Swollen	Tender	Retract	Swollen	Tender	<100F	>100F	NR	<10 ⁴	>10 ⁴	NR	<5	>5	NR	No Growth	Post NR
Testis	83	1	10	10	65	50	14	12	19	79	10	1	51	36	3	77	2	11	59	0	31
Appendage	18	-	7	5	11	17	2	4	4	22	-	-	16	3	3	20	-	2	14	-	8

regardless of the degree of torsion, all the testes were non-viable and excised.

In our series with acute testicular torsion the immediate salvage rate was 76% (57 patients). Eighteen testes were found to be non-viable and 17 underwent orchiectomy and one had the tunica decompressed, biopsy done and the testicle left insitu. The contralateral testis, when present, was always explored at the same time and orchiopexy carried out.

Complications

There were no major complications. One patient had a minor wound infection which was managed conservatively. One patient required a secondary orchiectomy due to sloughing of a biopsied, non-viable testis left insitu.

Follow-Up

The rate of secondary atrophy can only be judged from long-term follow-up after orchiopexy. Macnicol⁷ noted that nearly one-third of immediately salvaged testis show atrophy within two years (Table 4).

All patients who had undergone orchiopexy were requested to return to assess subsequent atrophy. Due

to the transient patient population inherent in our county hospitals, only a small number of patients returned for follow-up (16). Three were excluded from this study as the follow-up was less than six months. The long-term salvage rate was 69%.

Discussion

Extravaginal torsion of the testis is confined to newborns and is thought to occur because the scrotal contents are poorly anchored to the scrotum. The management of neonatal torsion is controversial with some recommending conserving the testis regardless of its viability while others recommend orchiectomy because of the possible disadvantages of leaving a non-viable testis insitu. Williamson et al.⁸ reported that the conservation of non-viable testes led to impaired wound healing with extrusion of sloughing testicle and some requiring a secondary orchiectomy (12/293 cases). We had one patient in this series in which a non-viable testicle was biopsied and left in after exploration and this testis sloughed and extruded in the postoperative period, requiring a secondary orchiectomy. Another patient in whom a non-viable

TABLE 3
Fate of Testis in Relation to Duration of Symptoms and Degree of Torsion

	DEGREE OF TORSION							N. R.	TOTAL TESTES	TREATMENT		
	90°	180°	270°	360°	540°	720°	> 720°			ORCHIECTOMY	ORCHIOPEXY	OTHER
<6 Hrs.	1	1	3	5	2	5	-	14	31	2	29	-
7-12 Hrs.	-	1	-	3	-	1	1	6	12	1	11	-
13-18 Hrs.	-	-	-	2	-	-	-	2	4	-	4	-
19-24 Hrs.	-	-	-	-	-	1	1	7	9	1	7	Test Bx. Only
25-48 Hrs.	-	-	-	2	-	-	-	4	6	-	6	-
>2 Days	-	1	1	1	-	5	-	5	13	13	-	-
									75	17	57	1

TABLE 4
Normal Testicle Found on Palpation on Follow-Up in Patients Having An Orchiopexy after Reduction of Acute Torsion of the Testis

	ORCHI-ECTOMY	ORCHIO-PEXY	IMMED. SALVAGE RATE	FOLLOW-UP #	LENGTH	NORMAL TESTIS ON F.U. PALPATION RELATED TO DURATION OF SYMPTOMS (HRS) PRIOR TO SURGERY										TOTAL	LONG-TERM SALVAGE RATE
						<6	<8	12	16	24	36	48	72	>72			
MACNICOL (1974)	19	23	55%	21	>2 YRS.	7/10	2/11								9/21	23%	
KING (1974)	0	38	100%	36	>1 YR.	8/8	6/13								15/36	42%	
DONOHUE (1978)	17	116 46*	87% 100%	76 32	>6 MOS.	44/44	12/17	3/15				59/76 32/32			63% 100%		
WRIGHT (1977)	15	41	73%	26	>2 YRS.	15/17	4/4		0/1		0/4			19/26	46%		
PRESENT SERIES	17	57 [†]	76%	16	>6 MOS.	5/8	3/3	3/3		0/1		0/1		11/16	69%		

*Acute torsion that had undergone spontaneous reduction prior to immediate surgery

†Three excluded from follow-up as length of time from surgery < 6 months

testicle was left insitu had an uneventful postoperative period.

Intravaginal torsion is due to a freely mobile testis within a capacious tunica with a high reflection of the tunica vaginalis — the classic Bell-Clapper deformity or due to a mobile testis with a long mesorchium. High reflection of the tunica vaginalis causes anomalous insertion of the cremaster fibers to the lowermost part of the spermatic cord on the inner aspect of the tunica instead of extending over the outer aspect of the vaginal sac.⁹ Strong sustained contraction of the cremaster will result in torsion — especially with a freely mobile testis from a congenital anomaly. Ipsilateral anatomic abnormalities were noted in 48 cases (53%) and contralateral anomalies in 31 cases (34%). The reported incidence in the literature is 37% on the affected side and 42% on the contralateral side. The inciting incident for acute torsion is speculated to be trauma, unusual body movements, exercise or sexual activity — events related to hyperactivity of the cremaster. In this series a history of trauma was elicited in three patients (including one self-manipulation), recent exercise in 17 and sexual activity in 10. It has been postulated that torsion occurring during sleep is probably related to elevation and rotation of the testis due to cremasteric activity during the sexual response cycle (excitement-plateau-orgasm-resolution).¹⁰

Recent review of the literature shows that the

salvage rate for testicular torsion is about 80% if exploration is carried out within six hours of the onset of symptoms.¹¹⁻¹³ The incidence of orchiectomy or subsequent atrophy increased with duration of symptoms beyond 10 hours. Donohue et al.¹² in their elegant study reported a salvage rate of 100% in the first six hours, 70% in 12 hours and 20% beyond 12 hours. Experiments in animal models have shown that interruption of the arterial supply causes complete loss of spermatogenic cells in four hours and eliminated all Leydig cells after 10 or more hours of ischemia.¹⁴

Since the degree of torsion cannot be assessed accurately preoperatively the time factor is most critical if the immediate salvage rate is to improve and, more importantly, subsequent atrophy of testicular tissue prevented. Long-term follow-up is mandatory to ascertain accurately the ultimate outcome.

Other diagnostic studies like Doppler, ultrasound and scanning may be used to help differentiate epididymitis from torsion.

Torsion of the appendage is rarely diagnosed accurately preoperatively and the differential diagnosis is always testicular torsion requiring prompt surgical treatment. Controversy exists as to the advisability of exploring the opposite side as appendages are found in 69% bilaterally but the incidence of bilateral torsion of appendages is only 1%.

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Partial Hypothalamic Insufficiency Resulting from Herpes Simplex Encephalitis — Caplan et al. (page 344).

Partial Hypothalamic Insufficiency Resulting from Herpes Simplex Encephalitis

Report Of A Probable Case

ROBERT H. CAPLAN, M.D., F.A.C.P.*; JAMES E. GLASSER, M.D.* and CHARLES A. RODMAN, M.D.†

This report describes a 58-year-old man who developed acute adrenal and thyroid insufficiency shortly following a neurologic symptom complex consisting of headache, thalamic pain, and olfactory hallucinations. Endocrine function studies suggested a hypothalamic cause for his glandular failure, and neuroradiologic studies indicated a mass in the right caudate area. Neurologic and hypothyroid symptoms and signs abated, and computed tomography of the brain reverted to normal. Complement fixation studies displayed a rise in herpes simplex (*Herpesvirus hominis*) antibodies. We suggest that herpes simplex encephalitis may cause endocrine deficiency by involving the hypothalamus.

HYPOPITUITARISM SECONDARY to hypothalamic insufficiency may result from primary and metastatic CNS tumors, trauma, granulomatous diseases, congenital, and degenerative disorders, radiation therapy, and temporal arteritis.^{1,2} In many cases, the cause is unknown.^{1,2} Meningoencephalitis may affect the hypothalamus and anterior pituitary gland, but hormonal deficiencies resulting from these infections are rare.³ We report here a patient who suddenly developed severe headaches, olfactory hallucinations, thalamic pain, and deficiencies of adrenocorticotrophic hormone (ACTH) and thyrotropin (TSH). Herpes simplex (*Herpesvirus hominis*) encephalitis probably caused the symptom complex.

Methods

We measured serum thyroxine (T₄) by radioimmunoassay and triiodothyronine uptake (T₃U) with commercial kits available from Nuclear Medical Laboratories (normal ranges, 5.2 to 11.2 µg/dl and 36 to 44%, respectively). A free thyroxine (FT₄) index was calculated by dividing the product of the T₄ and T₃U by 100 (normal range, 2.2 to 4.6). Thyrotropin (TSH) was measured with a radioimmunoassay kit available from Beckman Laboratories (normal range, up to 9 µU/ml). We measured plasma cortisol concentration by a fluorometric technique, (normal range, 5-20 µg/dl at 0800 h). The Mayo Medical Laboratories measured plasma growth hormone (GH), prolactin, follicle stimulating hormone (FSH), luteinizing hormone (LH), and testosterone by

radioimmunoassays. Normal basal reference ranges for these hormones were as follows: GH, 0-5 ng/ml; prolactin, 0-20 ng/ml; FSH, 9-104 µg/dl; LH, 1.8 to 13 µg/dl; testosterone, 300 to 1200 ng/dl.

Adrenocortical reserve was assessed by measuring the concentration of serum cortisol before and after an 8 hour intravenous infusion of synthetic ACTH (cosyntropin, Cortrosyn®).⁴ We determined ACTH and GH reserves by measuring serum cortisol and GH after an intravenous injection of crystalline zinc insulin (0.1 or 0.15 units/kg body weight)⁵. Thyrotropin and prolactin reserves were assessed by measuring TSH and prolactin following a 500 µg injection of synthetic thyrotropin-releasing hormone (TRH, protirelin, Thypinone®).⁶

The Wisconsin State Laboratory of Hygiene measured antibodies to herpes simplex by complement fixation.

Case Report

A 58-year-old farmer enjoyed excellent health until July 30, 1979, when he suddenly developed a severe retro-orbital headache and numbness and pain in the left hand. The headache gradually subsided, but numbness and pain in the extremity continued. The pain, partly relieved by assuming the upright position, was severe enough to prevent sleep. The patient developed olfactory hallucinations resembling "bad shaving lotion." Over a period of one month, he developed coldness, constipation, marked fatigue, nausea, vomiting, and lightheadedness, and lost 13 lb. of weight. His libido diminished, and he became impotent. He also experienced chills and low grade fever (37.2°C). Ultimately, the patient was unable to work and took to his bed because of marked prostration.

Examination on September 7, 1979 disclosed a pulse of 72 beats/min and supine and standing blood pressures of 120/80 and 110/80 mmHg, respectively. There were fine wrinkles about his eyes and mouth, but the skin and hair were otherwise normal. The thyroid gland and testes were normal. His hands and feet were large but there

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were no other stigmata of acromegaly. The remainder of the general physical examination and the neurological examination were normal.

Complete blood counts, urinalysis, multi-channel biochemical profile, and serum electrolytes were within normal limits. Baseline hormone concentrations are summarized in the Table. Following an eight hour infusion of synthetic ACTH on two consecutive days, the serum cortisol rose to 21.2 and 39.2 $\mu\text{g/dl}$, respectively. Plasma GH levels obtained before and after an oral glucose load (100g) were 4 ng/ml.

The results of the pituitary reserve tests are illustrated in Figure 1. Unfortunately, significant hypoglycemia was not achieved by the insulin injection and thus the failure of cortisol and GH to rise could not be interpreted. Although the baseline concentration of TSH was in the low-normal range, the hormone was inappropriately low for the diminished FT_4 index. The TSH response to TRH was delayed and of low intensity. Baseline prolactin concentration and prolactin response to TRH were normal.

Plain roentgenograms of the skull and tomograms of the sella turcica were normal. Roentgenograms of the cervical spine revealed degenerative changes at the level of C4 to C6. Visual field testing was normal. Computed tomography of the brain (Figure 2) demonstrated asymmetry of the ventricles; a soft tissue mass bulged into the third ventricle and the inferior aspect of the right lateral ventricle. A right carotid angiogram (Figure 3) suggested lateral displacement of the right thalamo-striate arteries. Basal and sleep-deprived electroencephalograms (EEGs), performed with nasopharyngeal electrodes, were normal.

A presumptive diagnosis of a glioma of the thalamic and hypothalamic area was made. The patient was treated with phenytoin sodium (300 mg/day) and 1-thyroxine (0.15 mg/day). He also received cortisone acetate 25 mg in the morning and 12.5 mg in the evening. On this regimen, the headaches, left upper extremity pain and paresthesiae, and olfactory hallucinations quickly disappeared and symptoms of adrenal and thyroid insufficiency abated. The patient's libido and potency returned to normal. Further diagnostic

studies (i.e., pneumoencephalogram and brain biopsy) were deferred because of his rapid clinical improvement.

In October, 1979 the patient developed a fever (40.0°C), a maculopapular eruption and displayed signs and symptoms of acute adrenal insufficiency. An allergy to phenytoin sodium was suspected. After discontinuing the drug, the fever and rash abated. Neurologic symptoms did not recur, and the adrenal insufficiency responded to a temporary increase in the cortisone acetate dosage. Computed tomography of the brain was normal on October 22, 1979;

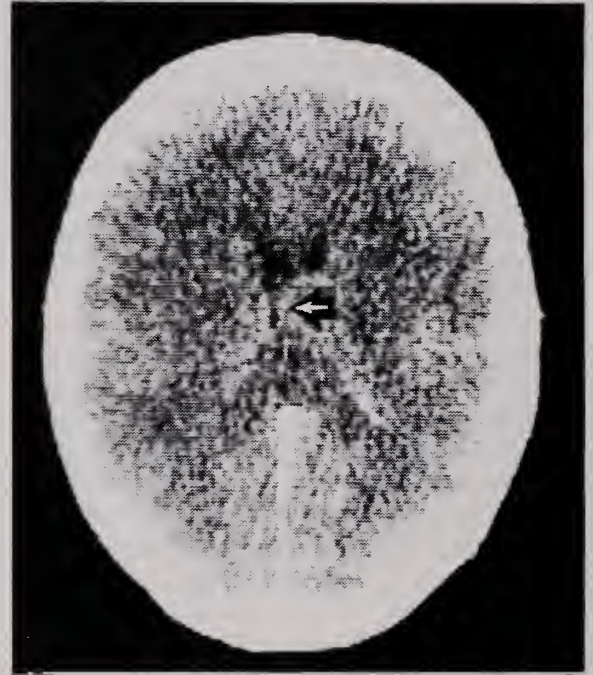


Fig. 2 — Computed tomography of the brain (Sept. 1979) demonstrating asymmetry of the the ventricles and a soft tissue mass bulging into the third ventricle and the inferior aspect of the right lateral ventricle.

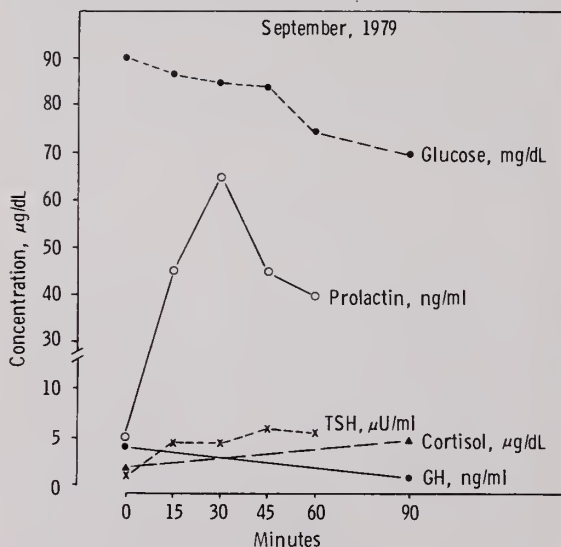


Fig. 1 — Response of cortisol, growth hormone (GH), glucose, thyrotropin (TSH), and prolactin following the intravenous administration of crystalline zinc insulin (0.1 units/kg) and protirelin (500 μg).



Fig. 3 — Right carotid angiogram suggesting lateral displacement of the right thalamo-striate arteries.

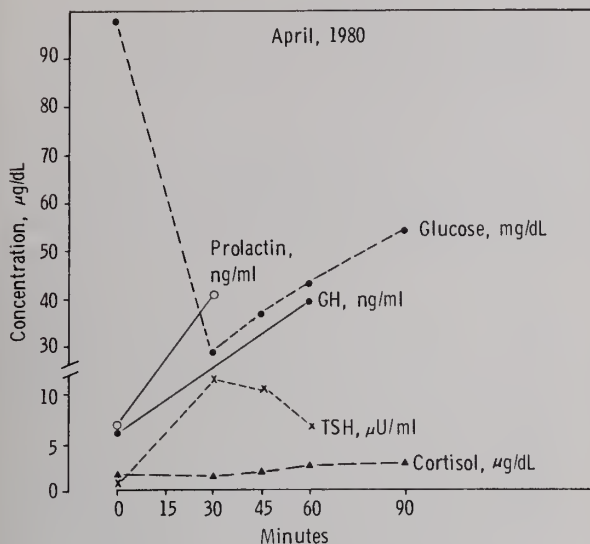


Fig. 4 — Response of cortisol, growth hormone (GH), glucose, thyrotropin (TSH), and prolactin following the intravenous administration of crystalline zinc insulin (0.15 units/kg) and protirelin (500 µg).

detailed neurologic examination, and computed tomography of the brain remained normal in January, 1980.

Because of the clinical improvement and return of the computed tomography of the brain to normal, the diagnosis of a glioma was no longer tenable, and a reversible brain lesion was suspected. Serum, obtained and frozen on August 1, September 11, November 8, 1979, and January 7, 1980 were analyzed for herpes simplex antibodies and titers of 1:64, 1:32, 1:64 and 1:128 were obtained. In March, 1980, 1-thyroxine was discontinued and dexamethasone (0.75 mg/day) was substituted for cortisone acetate. Five weeks later, basal hormone measurements (Table) and pituitary reserve tests (Figure 4) were repeated. The insulin dose was increased to 0.15 unit/kg body weight. The FT_4 index, basal TSH concentration, and the TSH response to TRH were now normal. Basal levels of testosterone and prolactin and the prolactin response to TRH remained normal. Significant hypoglycemia was achieved with the larger dose of insulin, but the serum cortisol concentration did not increase appropriately. Growth hormone response to hypoglycemia was normal.

Discussion

The patient presented here displayed clinical and laboratory signs of acute adrenal and thyroid insufficiency. The normal adrenal response to synthetic

ACTH excluded primary adrenal failure and spoke against longstanding pituitary ACTH deficiency.⁴ The failure of serum cortisol to rise normally following insulin-induced hypoglycemia can be seen in both hypothalamic and anterior pituitary failure and was, therefore, not of localizing value.⁵ Failure of GH secretion is the most common and usually earliest manifestation of anterior pituitary insufficiency. Normal GH reserve, therefore, suggested a hypothalamic source for our patient's ACTH deficiency. Normal prolactin secretion during the TRH test also suggested normal pituitary gland function.⁶ Finally, TSH responses in the first TRH test favored a hypothalamic lesion. Typically, patients with hypothalamic dysfunction display a delayed rise in the serum TSH (i.e., the 60 minute value is higher than the 30 minute level)⁶ whereas patients with anterior pituitary failure usually have a low basal TSH concentration that fails to increase after the TRH injection. Thus, the endocrine data support a hypothalamic cause for our patient's temporary TSH deficiency and persistent ACTH secretory failure.

Although our patient complained of diminished libido and impotence, serum testosterone and gonadotropin levels were within normal limits. Furthermore, his symptoms quickly abated after the institution of cortisone therapy and were probably nonspecifically related to a severe illness rather than the result of gonadotropin deficiency per se.

Our patient's endocrine dysfunction began shortly after he developed neurologic symptoms and were probably causally related. Initially, we suspected pituitary apoplexy, but the absence of altered consciousness, extraocular muscle palsies, pupillary abnormalities, and visual blurring, with a normal sella turcica militated against this diagnosis.⁷

The olfactory hallucinations were important clues in our patient since they were probably caused by irritative lesion(s) in the medial temporal or orbito-frontal cortex close to the uncus hippocampi or amygdala. Similarly, the extremity pain suggested a lesion in the thalamus.

TABLE

Hormone	Basal Hormone Concentrations		Date	
	Units	Normal Range	9-79	4-80
Thyroxine	µg/dl	(5.2-11.2)	4.1	5.4
FT_4 Index		(2.2-4.6)	1.5	2.3
TSH	µU/ml	(UP to 9)	< 2	< 2
Cortisol	µg/dl	(7-23)	2.1	2.0
Testosterone	ng/dl	(300-1200)	794	383
LH	µg/dl	(1.4-30)	11	
FSH	µg/dl	(2-104)	13	
GH	ng/ml	(0-5)	4	6

Computed tomography of the head and cerebral arteriograms were not consistent with pituitary apoplexy,⁸ but indicated a mass lesion in the thalamic area. Following the institution of phenytoin sodium therapy, the patient's neurologic symptoms and headaches completely abated and the computed tomography of the head returned to normal. Thus, a reversible brain disease was suspected.

Meningoencephalitis may affect the hypothalamus and pituitary gland but hormonal deficiencies from this disease are rare.³ Most reported cases of endocrine dysfunction owing to CNS infection result from tuberculous meningitis⁹ and diabetes insipidus is more common than anterior pituitary failure.³ Hypothalamic-pituitary dysfunction was described in three neonates with meningitis caused by group B beta hemolytic *Streptococci*^{10,11} and transient diabetes insipidus has been reported as a complication of pneumococcal meningitis in a 68-year-old man.¹² In a review of 42 cases of diabetes insipidus Jones mentioned one patient with chronic meningitis and encephalitis of unknown origin and three patients with syphilis.¹³ Several hypothalamic syndromes, including hormonal deficiency states, have been reported following poliomyelitis.¹⁴ Hagg and coworkers³ described a 43-year-old woman and a 53-year-old man who developed clinical and laboratory signs of permanent gonadal and thyroid failure following a meningoencephalitis of unknown etiology and encephalitis caused by Coxsackie B₅. Endocrine function studies in these patients suggested a hypothalamic source for the glandular failure.

Because of the reversible nature of our patient's neurologic syndrome, we suspected an infectious process and subsequently detected a rise in herpes simplex antibodies. The herpes simplex virus causes a rapidly progressive focal hemorrhagic necrosis of the brain and the resultant edema produces a mass effect. The temporal and insular cortex is usually affected, but the hippocampal formation, cingulate gyrus, and the orbital surface of the frontal lobe are also frequently involved. Necrosis of the parietal and occipital cortex, basal ganglia, midbrain and the hypothalamus has been reported.¹⁵

Herpes simplex encephalitis is an acute, febrile illness with cerebral involvement manifested by

alteration of consciousness, mentation, or behavior.¹⁶ Although this illness frequently produces coma and death or major neurologic residua, milder cases are occasionally recognized. Clinical and laboratory evidence of cerebral localization, usually in the temporoparietal areas, is a distinctive feature of herpes simplex encephalitis.^{16,17} Common features include focal motor or sensory deficits, aphasia, and a variety of temporal lobe signs and symptoms including olfactory hallucinations. More than half of affected adults have seizures, which are often focal. Occasionally, other types of localization such as cerebellar dysfunction are noted.

The laboratory diagnosis of herpes simplex encephalitis is difficult. Cerebrospinal fluid and electroencephalographic abnormalities are nonspecific.¹⁶ Because encephalitis was initially not suspected in our case, a lumbar puncture was not performed. The normal EEG spoke against encephalitis, but this study was obtained late in our patient's illness and may have reverted to normal; alternately, the normal EEG may have related to the location of the pathologic process in an electrically silent area of the brain. The rising titer of antibodies to herpes simplex virus unfortunately is not proof of causation since serum antibodies to this virus are commonly present in the normal population, and an increase in the antibody titer may be unrelated to contemporaneous acute illness.^{16,17} Computed tomographic scans revealing a mass effect, (as in our patient), low absorption in the temporoparietal areas, and abnormal contrast enhancement may be indicative of herpes simplex encephalitis.¹⁸ Brain biopsy and culture are currently the best available methods to diagnose herpes simplex encephalitis.¹⁶ This study, is not innocuous, and was not performed in our patient because of his rapid clinical improvement.

In summary, the case reported here, although not conclusive, suggests that herpes simplex encephalitis is another cause of hypothalamic insufficiency and that this complication should be added to the growing list of previously unrecognized features of this infection.¹⁹

Acknowledgments

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7-18. Will be found on page 340.

What is "Near-Miss" SIDS?

RALPH A. FRANCIOSI, M.D.* and JOANN BORAAS†

A profile of infants reported in the literature as "near-miss" SIDS is presented. These infants require prompt medical evaluation and management. We propose that the term "near-miss" SIDS is misleading and be replaced by Idiopathic Infantile Apnea.

CAMPS¹ USED the term "near-misses" to describe Gunteroth's experience with infants seen in emergency rooms because of sudden unexpected apnea and bradycardia. These episodes were usually associated with a minor respiratory illness. The apnea responded to respiratory resuscitation, often mouth to mouth. The infants apparently recovered uneventfully. The term "near-miss" implied that this episode of apnea if not detected and treated would result in death. Fisher,² a forensic pathologist, mentioned episodes of apnea that were observed clinically in two infants he diagnosed post-mortem as Sudden Infant Death Syndrome (SIDS). These infants had been hospitalized after being revived and were apparently "well" on discharge several days later. They died one week after the episode. Bergman,² a pediatrician, commented on his experience with 20 infants who presented with a sudden unexpected episode of apnea. These infants were successfully resuscitated, usually by mouth to mouth resuscitation. He noted that 18 infants had no subsequent problems, whereas two died of SIDS a short time later.

This article reviews reported cases of "near-miss" SIDS occurring in the United States.

Materials and Methods

The index medicus was reviewed for articles on "near-miss" SIDS. Three hundred and forty-three cases were abstracted.³⁻³³ In each case the following data were recorded; gestational age at birth, birth weight, age at occurrence, sex, behavioral state (awake, asleep), need for resuscitation, sleep state studies, use of a home monitor and clinical outcome.

Results

Two hundred and thirty-eight infants with the gestational age recorded at birth included: 21 (8.8%) pre-term, 216 (90.7%) term and one (less than 1%) post-term. One hundred and ninety-three with rec-

orded birth weights included: 5 (2.5%) small for gestational age, 118 (97.4%) appropriate for gestational age and none large for gestational age. The age at occurrence in 343 cases was: 22 (7.8%) less than one month; 128 (50.5%) one to three months; 54 (22.2%) three to six months and 47 (19.4%) greater than six months. Eighty-nine (52%) were males and 82 (48%) females. One hundred and sixty-six (84%) were asleep at the time of occurrence and resuscitation was required in 277 infants (99%). Two hundred and seventy-three (98.2%) infants had sleep state studies and 90% were abnormal. One hundred and thirty infants (52%) were monitored at home and 57% of these infants had subsequent apnea while being monitored. Eighty-six percent of these infants were alive and apparently "well" although three infants that were autopsied died of SIDS. Sixty-seven percent of the infants not monitored at home had subsequent apnea and 75% of these infants were alive although six (33%) had developed a neurologic deficit. Nine infants that were autopsied died of SIDS.

Discussion

The reported cases of "near-miss" SIDS are a selected group of infants usually referred to centers investigating this problem. A profile of the "typical" case: a term infant, with birth weight appropriate for gestational age, and the "near-miss" event occurring between one and six months of age, during sleep. Mouth to mouth resuscitation is usually required for revival. Sleep state studies, in the hospital, would indicate varying patterns of abnormal breathing during sleep. The infant was likely to have recurrent apneic episode within two weeks. If the infant was sent home on a monitor fourteen percent died and if not, twenty-five percent. The post-mortem diagnosis would be SIDS. If an infant is not monitored and survives there is a one-third probability of developing a neurologic handicap.

Our literature review clearly indicates a clinically detectable group of infants at risk for SIDS. However, we feel the term "near-miss" SIDS implies a diagnosis

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and it is therefore inappropriate. We would propose a scientifically acceptable term, e.g., Idiopathic Infantile Apnea (IIA) be substituted. This latter term can be used for clinical management of the individual case as well as for research into the pathogenesis. The clinical recognition of IIA is essential since this represents a pediatric emergency. These infants require prompt medical assessment to detect and treat known causes of infantile apnea, e.g., sepsis, meningitis, seizure disorder, etc. Only after the initial assessment can infants with IIA be defined and properly evaluated for breathing disorders during sleep. Since home monitoring is often indicated the infants must be under medical supervision. There must be adequate documentation of why the infant was monitored, how monitoring was done and a developmental follow-up to determine the outcome.

Summary

Three hundred and forty-three reported cases of "near-miss" SIDS were reviewed. The "typical"

infant experiencing this problem was: term, with a birth weight appropriate for gestational age, and experienced the episode between one and six months of age during sleep. Mouth to mouth resuscitation would be required to revive the infant. Sleep studies would show abnormal breathing patterns during sleep. If the infant was discharged on a home monitor fourteen percent would die and if not twenty-five percent. The cause of death would be SIDS. Follow-up studies of infants not on home monitors would show a neurologic handicap in one-third.

We feel the term "near-miss" SIDS is inappropriate and should be replaced by Idiopathic Infantile Apnea (IIA). This condition requires prompt medical attention to detect and treat the known causes of infantile apnea.

Sleep state studies should be performed in IIA to document abnormal breathing patterns during sleep. All infants that are discharged home on monitors must be under careful medical supervision that includes follow-up for possible neurologic handicaps.

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Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses). Myocardial infarction and stroke reported with use of this class of drugs. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving)

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide)

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. IV administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single h.s. dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

How Supplied: White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles at 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10. Prescription Paks of 50.

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Bone Marrow Transplantation at the University of Minnesota

PHILIP B. McGLAVE, M.D.;* NORMA K.C. RAMSAY, M.D.† and JOHN H. KERSEY, M.D.‡

The University of Minnesota is a pioneer in the techniques of bone marrow transplantation (BMT) and has contributed to the advances which have changed BMT from experimental therapy to accepted treatment for an increasing number of life threatening diseases. Drawing on extensive experience gathered from over 220 transplants performed at the University of Minnesota since 1968, we will discuss the techniques, problems, current results and expectations of bone marrow transplantation.

RESULTS GATHERED from over 220 bone marrow transplants at the University of Minnesota since 1968, as well as from other centers, suggest that BMT is the treatment of choice for severe combined immunodeficiency¹ and for severe aplastic anemia.² Moreover, more than 70% of patients under 30 years of age treated in early remission for acute non-lymphocytic leukemia (ANLL)³ and 35% of patients treated in early remission for acute lymphocytic leukemia (ALL)⁴ can be expected to be disease free survivors two years after BMT. Allogeneic BMT has also been used to cure uniformly fatal advanced Burkitt's lymphoma⁵ and offers hope for patients with chronic myelogenous leukemia (CML).⁶ The procedure has also been used to cure primary diseases of the immune system and reticuloendothelial system (RES) including osteopetrosis.⁷

In this review we hope to answer some basic questions about the techniques and problems of bone marrow transplantation, discuss the types of patients who might benefit from this therapy and the complications they may encounter, and review our own experience with bone marrow transplantation.

BMT Unit

The transplant unit at the University of Minnesota is a ten-bed, intensive care unit with a support area, nursing station and family lounge. Intensive care nursing is practiced by a dedicated corps of specially trained nurses and technicians using a patient to nurse ratio of approximately one-and-one-half to one.

Patients move to their rooms a few days before the start of chemo and radiation therapy and remain an

average of thirty-eight days. All patients have indwelling "Hickman" catheters which virtually eliminate percutaneous blood drawing and placement of intravenous lines. Isolation is provided by scrupulous handwashing and judicious use of masks.

Patients have stereos and T.V.s in their rooms and receive physical, psychological, occupational and play therapy during the transplant course. Families are encouraged to stay with the patients throughout hospitalization. The unit has a family lounge and the support of the "Ronald McDonald House" for out of town visitors.

Theory

Human bone marrow contains stem cells capable of repopulating the hematopoietic system, the immune system and the reticuloendothelial system. Under appropriate conditions these stem cells can be transferred from the bone marrow of a "donor" to an identical twin "recipient" (syngenic transplant); to a recipient who is not a twin (allogeneic transplant); or can be transferred back to the same donor (autologous transplant).

Immunologic Testing

Finding a match for a recipient is one of the basic problems of BMT. Allogeneic transplant recipients receive donor cells which are not immunologically identical to their own. Such transplants produce a series of specific clinical problems — rejection of engrafted marrow, graft versus host disease (GVHD) and infection occasioned by the intensive, long-lasting immunosuppression. These problems have forced transplant researchers to develop specific tests of the immune system which predict successful transplant matches and to develop methods of immunosuppression which allow successful transplant with less than

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perfectly matched cells.

Humans (and laboratory animals) possess "major histocompatibility antigens" which, when identical in donor and recipient, suggest that an allogeneic transplant will succeed, even though other "minor histocompatibility antigens" may differ. Human antigens are most accessible on lymphocytes and are named "human leukocyte antigens" or HLA. In the HLA assay immunologists use a battery of specific antibodies to find antigen products of the A, B and D loci of the donor and recipient. Lymphocytes are mixed with complement and specific antibody; destruction of the lymphocyte suggests the presence of the corresponding antigen. In this fashion, the HLA, A, B, D identities are established for donor and recipient.

In addition, immunologists mix lymphocytes from donor and recipient in tissue culture after irradiating either population of cells (one way mixed lymphocyte culture or "one way MLC"). Non-irradiated lymphocytes respond to unshared antigens on the irradiated lymphs by undergoing "blastogenic response", which is measured by incorporation of tritiated thymidine. Unlike some solid organ transplants, successful allogeneic BMT requires a donor and recipient who are "HLA identical and MLC non-reactive".

We look for an "HLA/MLC" match by testing the recipient, the parents and the siblings. This requires about 80ml. of heparinized, non-refrigerated blood from each prospective donor and the recipient delivered to our laboratory within twenty-four hours after drawing.

Although Mendelian genetics dictate that one of four siblings should be a match for a sibling recipient, the use of parents, and the large family size in our own population has resulted in about a 40% match rate among candidates for BMT. Attempts to transplant "mismatched" patients as well as attempts to transplant non-siblings are in progress.

Immunosuppression

Even an allogeneic BMT recipient who has an "ideal" histocompatibility match must undergo vigorous immunosuppression to blunt the recipient's response to donor antigens not detected by the present means of compatibility testing. Cyclophosphamide and irradiation are used prior to transplantation to produce immunosuppression. Irradiation can be administered in a variety of ways designed both to kill tumor cells and to cause immunosuppression (total body irradiation . . . TBI, used in malignancies) or designed specifically to provide effective immunosup-

pression alone (total lymphoid irradiation . . . TLI, used for severe aplastic anemia).⁸ Some protocols call for the use of other specific anti-tumor agents as well, before transplantation.

The Procedure

The procedure of bone marrow "harvesting" is much simpler than techniques of solid organ (kidney, pancreas, liver) transplant. While the donor is anesthetized in the operating room, the marrow transplant team removes 2ml. aliquots of bone marrow from the posterior iliac crests. Although the marrow resembles (and is often diluted by) blood, it contains a high concentration of hematopoietic stem cells. After enough marrow has been harvested (3×10^8 nucleated cells/kg recipient), it is strained to remove bone spicules, placed in blood donor bags and infused into the vein of the recipient. The stem cells find their way to the recipient's bone marrow. After 14-21 days, an increase in the recipient's white blood count, and in the reticulocyte count suggests that engraftment has occurred and that the new stem cells are successfully repopulating the hematopoietic system.

The marrow harvesting and infusion does not cause serious morbidity for either donor or recipient. Donors are usually discharged from the hospital the day after marrow harvesting.

Graft Versus Host Disease

After infusion of marrow, the allogeneic recipient usually has about a two to three week wait until an increasing white count suggests successful engraftment. Unfortunately, engraftment can be heralded by other clinical signs which indicate graft versus host disease (GVHD), the major obstacle to further development of allogeneic BMT.

Acute GVHD may occur at any time from engraftment to about 90 days after transplantation. Clinical manifestations include rash, diarrhea, abdominal discomfort, and a cholestatic-type liver dysfunction. The signs and symptoms can be confused with a variety of other clinical problems. They can be minor or life threatening events.

Chronic GVHD usually occurs three months to two years after transplant and consists of a different set of signs and symptoms which include skin rashes, photosensitivity, xerophthalmia, xerostomia, scleroderma-like syndromes and other manifestations which often resemble autoimmune diseases. Severe, chronic GVHD occurs in less than 5% of individuals undergoing BMT.

Among "matched" allogeneic recipients it is difficult to predict which individuals will be afflicted

by GVHD or to predict the severity of the clinical syndrome. Prophylactic immunosuppression of the recipient with methotrexate decreases the incidence and severity of acute GVHD, and is used routinely. Other therapies for prevention of GVHD are being studied at the University of Minnesota and include: *in vitro* pretreatment of donor bone marrow with anti-thymocyte antibody (ATG), prophylactic *in vivo* anti-T antibody after transplantation, specific anti-T cell agents (Cyclosporin) and other immunosuppressive measures.

Infection

Allogeneic BMT recipients receive high-dose chemotherapy and high-dose radiation therapy. This eliminates phagocytic leukocytes, cellular immunity and humoral immunity and provides an environment which will allow successful engraftment. Under ideal circumstances leukocytes begin to return within two to three weeks, although white cell function may be abnormal. The humoral immune system returns shortly after transplant; however, cellular immunity may be compromised for two to three years. These patients represent the most profoundly immunosuppressed patients in our hospital and are at grave risk for a variety of "opportunistic" infections.

During the first thirty days after transplant, recipients often have bacterial and fungal infections which require aggressive treatment with antibiotic and fungal therapy. Extraordinary efforts are made to identify pathogenic organisms by surveillance cultures and invasive diagnostic procedures when necessary.

Clinical Application of BMT

Severe Combined Immunodeficiency Disease

The first group of successful bone marrow transplants was performed in 1968 on young children with severe combined immunodeficiency disease (SCID). This group was small, but proved that BMT could reconstitute the immune system of severely immunocompromised individuals.

Aplastic Anemia

BMT for severe aplastic anemia (AA) followed. Identical twin (syngeneic) transplant for aplastic anemia seemed simple: one supplied new immunologically identical marrow to an empty recipient marrow. In a few cases, however, syngeneic transplant without preparation of the donor was unsuccessful. Donor bone marrow was rejected and histological sections of recipient bone marrow demonstrated few hematopoietic cells and many lymphocytes. Repeat

transplantation following immunosuppression (usually with cyclophosphamide) was often successful. This experience suggested that not all cases of aplastic anemia were related to stem cell failure caused by exogenous toxins. Some marrow failures were related to endogenous events which regressed only after immunosuppression.

Allogeneic transplantation for AA resulted in rejection in up to 50% of cases, even with ideal HLA/MLC matches. An understanding that "presensitization" of the recipient's immune system with blood transfusion and realization that a high number of stem cells must be injected during transplant has led to successful engraftment in up to 70% of "sensitized" patients and in about 83% of "nonsensitized" patients, (i.e. patients who have not received transfusions).

A new approach to immunosuppression of sensitized patients with total lymphoid irradiation (TLI) prior to BMT has been developed. This approach has markedly reduced the rate of rejection in patients transplanted for AA⁹. Based on current excellent results, BMT is accepted as the treatment of choice for patients with severe AA who have a histocompatibility match¹⁰. In general, transplantation should be performed as quickly as possible at a major transplantation center and should not be delayed by a trial with steroids, androgens or other agents.

Acute Leukemia

BMT following high dose chemotherapy and total body irradiation has recently been used in an attempt to improve the survival of patients with leukemia. Early experiences with end-stage patients resulted in high mortality from relapse, GVHD and infection. A few patients in this group were long-term survivors. This suggested that BMT could eradicate acute leukemia. Patients who survived two years in complete remission rarely relapsed. BMT has been used in two groups of patients with acute leukemia. The five year survival rate for newly diagnosed pediatric patients with acute lymphocytic leukemia (ALL) is now 60%, with present chemotherapy. Patients who relapse, however, have a very poor median survival of ten months. Patients with ALL transplanted in second remission have a two year disease-free survival rate of 35%. This represents a substantial improvement. Further studies to improve disease-free survival and to understand the role of allogeneic BMT in first remission ALL in young adults are underway.

Although the successful complete remission induction rate for patients with acute non-lymphocytic leukemia (ANLL) with present chemotherapy has now reached 70-80%, the majority of these patients relapse

and die as a result of recurrent leukemia, despite improvements in induction therapy and aggressive consolidation and maintenance programs. Studies are now being done comparing results of conventional chemotherapeutic approaches with results of BMT performed immediately after initial remission from ANLL. Although the results are still early, the two year disease-free survival for young patients with ANLL transplanted in first remission is 60-70%^{3,11}. Early experiences with BMT suggests that patients who remain free of disease for two years will usually not relapse¹².

Lymphomas

Allogeneic BMT has also proven useful in some high-risk lymphomas, such as Burkitt's lymphoma. Fifty percent of patients treated in remission with cytosine arbinoside, BCNU, cytoxan, TBI and transplant⁵ are in complete clinical remission up to 6 years after transplantation.

Chronic Myelogenous Leukemia

CML accounts for 25% of leukemia in adults and is uniformly fatal with an overall survival of about three years. Conventional therapy has not appreciably prolonged survival¹³. At the University of Minnesota we are engaged in clinical studies designed to eradicate this disease and to give new, normal marrow to these patients. Studies with very ill patients suggest that we can eradicate the disease⁶, and attempts to perform BMT early in the course of CML are underway.

New Directions in Bone Marrow Transplantation

One of the most vexing problems in bone marrow transplantation is that only those individuals who have a very good "immunologic match" can be transplanted successfully at present. Members of the University of Minnesota BMT team are approaching this problem from several directions. One clinical study being performed now uses a "monoclonal antibody" raised in animals which reacts specifically with human T-lymphocytes. T-lymphocytes of the donor marrow may be responsible for the GVHD which occurs when mismatched marrow is transplanted. If anti-T cell antibody can eradicate donor T cells after mixture with the donor marrow, mismatched transplants might be possible.

Another approach to the matching problem is to establish an HLA registry for BMT in cooperation with other major centers. BMT may be successful even when donor and recipient are not siblings, if they are HLA matched.

Another area under study is the use of allogeneic BMT in the treatment of serious metabolic diseases. The abnormal osteoclasts in the rare disease osteopetrosis can be replaced and the patient restored to good health with BMT⁷. Other diseases of the RES involving defective cells, such as Gaucher's Disease, may be susceptible to the same approach. Correction of enzyme deficiency with BMT has been done in animals¹⁵ and may be applicable to humans.

With persistence, the approach of allogeneic bone marrow transplantation may be useful to even more people with a variety of serious illnesses.

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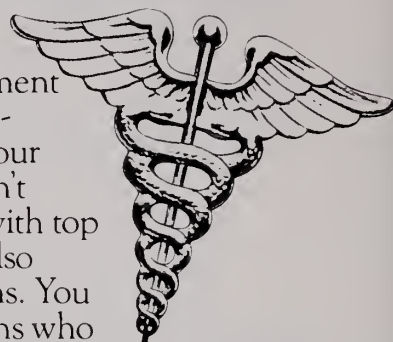
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Editorial

A New Taste of Old Wine: Debut of "Echoes from Our Past"

JACK D. KEY, M.A., M.S.*

I know, my dear Watson, that you share my love of all that is bizarre and outside the conventions and humdrum routine of everyday life.

Holmes to Watson in:
The Red-Headed League
— Arthur Conan Doyle, M.D.

On January 5, 1665, the scientific journal phenomenon began with the appearance of *Journal des scavans*. Now, if one includes all serial publications, we have passed the 100,000 mark and have more than 2,000 abstract journals and indexing tools. Medicine in the United States alone boasts of about 1,000 journals devoted exclusively to its interests and several thousand others to subjects of related interest. No one is quite sure of the international figure, but estimates have put the number of medical journals published worldwide at 4,000. Those dealing with biology and other topics of concern to physicians were estimated at 7,000. Taken together this is really a staggering number especially when you consider that in every 24-hour period several thousand articles must go into print to fill them.

Millions of pages annotate the progress of medicine from that earlier time to the present. A small percentage of these hold the acknowledged classics — the foundation contributions — the seminal ideas which change man and the world in which he lives.

*Librarian, Mayo Clinic, Rochester Minnesota.

These have been awarded recognition, are reviewed, and often referenced. Little notice is now taken of much of the remaining published efforts. These, while perhaps really only pertinent for their day and with little or no enduring value, still mirror the spirit of those times. From them much can be found which is unqualified nonsense, absurd, humorous, unusual, sometimes bizarre, interesting — often fascinating, and even stimulating.

"Echoes from Our Past" provides the excuse to dip into this forgotten literature, to dust it off, and savor the gifts of history — warts and all — from the perspective of our own time. It is directed to the readers of MINNESOTA MEDICINE who may glean some refreshing appreciation for men, women, and medicine of the past. Scope of coverage is restricted only by the limits of what is likely to be of interest. Operationally, "Echoes from Our Past" will appear irregularly and as space permits.

With this venture we will broach vintage stock of the literature of medicine and together enjoy a new taste of old wine.

Dermatology Page

J. CORWIN VANCE, M.D.*

I would like to thank the editors of MINNESOTA MEDICINE for the opportunity to begin a section devoted to discussion of diseases of the skin. I envision it as a method to convey important dermatologic subjects to the readers of the journal, much in the same manner as "Rheumatology Corner" does for that specialty. I plan to write short reviews of current topics of dermatologic interest. Other dermatologists will be invited to submit abstracts for this section. In addition to clinical reviews, topics of interest to the general medical community in Minnesota which are presented at important dermatologic meetings will be abstracted. In this vein, a series of talks are to be given at the Michaelson Meeting of the Minnesota Dermatologic Society concerning advances in parasitology in Minnesota. Some of these talks will be published in an

expanded abstract form.

In addition, I have an interest in the occurrence of toxic plants in Minnesota and plan a series of reviews concerning them. The recent paper on *Anemone patens*[†] is an example. It has become popular to use "natural" products for food, medicine, and particularly skin care items. In past years people were very aware of the potential toxicity of plants, but this awareness is fading. Even in a farming state such as Minnesota, a small proportion of the population has prolonged or intimate contact with plants. This trend may be reversing, however, and we may expect to see more frequent and more serious complications of the use and abuse of plants. Hopefully a more general awareness will help prevent problems.

This will be a somewhat eclectic approach to dermatologic topics and will be published approximately bimonthly.

*Assistant Chief of Dermatology, Hennepin County Medical Center, and Assistant Professor, University of Minnesota, Minneapolis, Minnesota.
[†]March, 1982, issue, page 149.

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Minnesota Department of Health

A Developing Perspective on Low-level Radioactive Waste

GEORGE R. PETTERSEN, M.D.,* and ROGER L. DeROOS, Ph.D.†

RECENT EVENTS have served to focus attention on the way in which Minnesota and other states manage low-level radioactive waste (LLRW) generated within their borders. There has been a sharp reduction in the number of approved disposal sites accepting LLRW in the United States and in the amount of waste being accepted at those sites which are still available for use (Table 1). Some sites have been closed for safety reasons, or because they ran out of space. Others lack the capacity to continue serving the entire country. In addition, states with functioning disposal sites have expressed concern about the way in which waste from other states has been packaged for shipment.

The situation reached crisis proportions in 1979, when disposal sites at Richland, Washington, and Beatty, Nevada, were temporarily closed, leaving the country with only Barnwell, South Carolina, which was restricting volume accepted to preserve landfill space.

Congress has addressed the issue by passing the Low-Level Radioactive Waste Policy Act of 1980, which places the responsibility for the management of low-level waste on the states. The Act provides for the formation of interstate compacts by which groups of states can manage their low-level waste on a regional basis.

After January 1, 1986, any disposal facility operated under the terms of such a compact can refuse to accept low-level waste from states which are not members of

the compact. States which have not joined a compact by then may be forced to dispose of their own waste within their own borders.

It is projected at this time that it may take even beyond 1986 to set up any new disposal facilities given the time needed to select a site, issue necessary permits, construct the facility, obtain a license, and place the facility into operation. Minnesota must, therefore, act quickly to establish its own policy on the management of low-level waste.

The low-level waste issue is of special relevance for practicing physicians. The use of radioisotopes for therapeutic and diagnostic purposes has come to play an important role in the practice of medicine. Also, there are two large facilities in Minnesota which use radioisotopes in the conduct of medical research. Such medical use of radioisotopes is a significant source of low-level waste. In addition, because of the health concerns which necessarily surround the management of LLRW, physicians may be asked to provide leadership in dealing with this matter.

In discussing low-level radioactive waste, it is necessary to understand the very significant ways in which it differs from high-level radioactive waste. Federal statutes and regulations define low-level waste by distinguishing it from certain types of material, that are specifically defined as "high-level" waste, such as irradiated reactor fuel and uranium mill tailings. Responsibility for the management and disposal of high-level waste resides entirely with the federal government, which is now working on procedures for finding a suitable high-level waste disposal site.

TABLE 1
Status of Sites

Location	Year First Licensed	Status of Current Operation	Remaining Capacity, 1979* (million cubic feet)
Beatty, NV	1962	Open †	21.0
Richland, WA	1965	Open †	30.6
Barnwell, SC	1971	Significantly reduced volume accepted since 1979.	49.8
Maxey Flats, KY	1962	Closed 1977	
West Valley, NY	1963	Closed 1975	
Sheffield, IL	1967	Closed 1978	

*Source: National Conference of State Legislatures, "A Legislator's Guide to Low-Level Radioactive Waste Management," Denver, Colorado, May 1981.

†The site is accepting all types of low-level waste, if it is in compliance with host state rules.

In addition to being more radioactive, high-level waste generally contains materials with longer half-lives than those found in low-level waste. Therefore, high-level waste must be handled even more carefully and isolated for longer periods of time than low-level waste.

Low-level waste includes materials which emit primarily beta and gamma radiation. It does not include materials with concentrations of transuranic elements amounting to more than 10 nanocuries/gram. The transuranic elements are artificial isotopes with atomic numbers greater than that of uranium, some of which have very long half-lives.

Proposed federal regulations would divide low-level waste into three categories for purposes of disposal at a "shallow land burial" facility. Class A waste, containing the lowest concentrations of radioactive material, would simply have to meet basic requirements regarding its physical form and characteristics. Class B waste, containing radioisotopes in higher concentrations and longer half life, would have to be treated or packaged for stability, so changes in its physical condition will not compromise the integrity of the disposal site. Class C waste, containing the highest concentrations of radioisotopes and longer half life, would have to be specially protected or buried deeper than other kinds of waste.

In medical practice and research the production of low-level waste results principally from the use of small amounts of radionuclides, that contaminate disposable materials like absorbent papers, gloves and containers. There may also be some liquid radioactive waste, such as acids, bases and solvents, and animal carcasses contaminated with small amounts of radioactive materials. Research and medical waste contain relatively small concentrations of radioactive materials with relatively short half-lives. Unlike high-level waste, it does not require shielding during shipment. The containers originally used to ship the radioactive materials used in research and medicine applications tend to contain higher concentrations of radionuclides than the waste generated while using these materials.

If low-level radioactive waste is to be managed effectively, it is important to have accurate information about the size of the task. The Minnesota Department of Health (MDH), with the help of several other State agencies, has designed and conducted a survey of low-level waste generators in the State to determine the types and amount of waste being produced. It was found that of 188 facilities licensed by the Nuclear Regulatory Commission (NRC) to use radioactive materials 22 were actually shipping low-level waste to disposal sites. The discrepancy between the number of licensed users and the number actually shipping waste can be accounted for in a number of ways. For instance, many facilities use radioactive materials in the form of "sealed sources," which are eventually returned to the manufacturer for disposal. Also, waste containing materials with short half-lives can often be stored by the generator until the radioactivity reaches background levels, and then it can be disposed of in a conventional manner.

During the period covered by the survey (1977-79), the four primary sources of low-level waste were: (1) medical care and research facilities, (2) educational institutions, (3) industrial plants, and (4) nuclear power reactors (Table 2). Among the materials shipped were scintillation vials and fluids, animal carcasses, and radioactive sludges and resins produced in the process of treating contaminated cooling water at the power plants. As the data in Table 2 indicate, the State's two power reactors account for about half of the total volume of waste. The rest comes in roughly equal amounts from medical, industrial and educational sources. The situation nationally is similar in that power reactors have been estimated to produce about half of the total volume of low-level waste. In terms of radioactivity, however, the picture is different. As Table 2 shows, power reactor waste accounts for more than 90% of the radioactivity of low-level waste produced in Minnesota.

The role of generators in managing low-level waste goes beyond simply shipping it for disposal. Many generators are able to store waste temporarily for periods ranging from two days to two years. The

TABLE 2
Low-Level Waste Generated in Minnesota
Average Shipped per Year: 1977-1979

Type of Facility	# of Facilities	Volume (ft ³)	Activity (Curies)
Medical	8	8,390 (15.6%)	320.6 (0.85%)
Educational	5	7,391 (13.8%)	17.0 (0.04%)
Industrial	6	9,566 (17.8%)	2,235.5 (5.90%)
Commercial Power Reactor	2	28,363 (52.8%)	35,289.7 (93.21%)
	21	53,710 (100%)	37,862.8 (100%)

average facility can store waste for five to six months. For many of the faster-decaying nuclides, this provides the seven to ten half-lives needed for radioactivity to reach background levels. It is then sometimes possible to release these materials to the sewer system or incinerate them, reducing the volume of waste which must be shipped to a disposal site. The NRC has recently changed its disposal regulations to permit the release to sewer of tritium and carbon-14 within certain concentration limits.

Users of radioactive materials employ a number of methods to prepare their low-level waste for shipment to disposal facilities. Paper and other kinds of dry trash are often compacted, reducing their volume by 60-80%. Absorbent material is often added to liquid wastes, and this may increase their volume considerably. Seven to 20 gallons of absorbed liquid waste will typically fill a 30- to 55-gallon shipping drum. One Minnesota shipper places scintillation vials between layers of diatomaceous earth, filling a 55-gallon drum with only five gallons of liquid waste. This represents an 1100% increase in volume.

The cost of managing low-level waste and the difficulty of the task depends partly on the volume of waste being produced. It is, therefore, useful to compare the amount of waste produced in Minnesota and in other states. The National Conference of State Legislatures recently estimated* that Minnesota had produced 51,600 cubic feet of waste in a single year, or 2% of the total amount produced in the United States. That compared with 238,600 cubic feet for Illinois, which accounted for 8% of the national total. Illinois is one of the top ten low-level waste producing states. Wisconsin, North Dakota, South Dakota, and Iowa, each generated 1% or less of the national total in 1979. The largest volume of waste came from New York, which generated 337,900 cubic feet, or 12% of the national total.

The cost of managing low-level waste includes the cost of transporting it, the cost of developing disposal facilities, and the actual disposal fees charged by those facilities. Disposal fees must cover the cost of operating and regulating a disposal site, and the cost of extended care and maintenance after the site closes. Some costs, like those for site selection and regulation or for environmental monitoring, do not vary greatly with the size of the disposal facility. Disposal fees might have to be markedly higher at smaller facilities handling a lower volume of waste. It has been estimated* that, at a disposal facility handling roughly

twice the amount of waste produced annually in Minnesota, the disposal fee would be about \$66/cubic foot of waste. At a larger facility, handling about 1.2 million cubic feet annually, the cost would drop to about \$14 per cubic foot. This cost advantage could be achieved by a regional disposal facility that would accept waste from a number of states.

The Low-Level Waste Policy Act gives states two basic options for dealing with low-level waste. They can either form compacts and set up regional management systems and disposal facilities, or they can manage and dispose of their waste individually.

Under this system, each non-compact state may be forced to provide for disposal facilities within its own borders, regardless of the cost or the difficulty of finding a suitable site. As noted, compact states can deny use of their disposal facilities to non-compact states after 1986. However, non-compact states may not be able to deny access to their own disposal facilities. States in which existing disposal facilities are located have already tried to refuse waste from other states, but the federal courts have interpreted such refusal as an illegal barrier to interstate commerce. The issue is still unresolved.

Possible groupings of states for compact purposes have been suggested by the National Governors Association, the National Conference of State Legislatures, the Department of Energy, and some of the states themselves. The Commissioner of the Minnesota Department of Health has been negotiating with two separate groups of states. One is a "Midwest States" group, which includes: Delaware, Illinois, Iowa, Kansas, Kentucky, Maryland, Michigan, Indiana, Missouri, Nebraska, North Dakota, South Dakota, Ohio, Virginia, and Wisconsin. The other is a "Central States" group, which includes: Kansas, Arkansas, Iowa, Missouri, Louisiana, Oklahoma, and Nebraska. The Central States group has negotiated language for a compact agreement, and the Midwest group is expected to complete work on an agreement in July.

Two groups of states, in the southeast and the northwest, have made the most rapid progress in compact negotiations, partly because they will be using existing disposal facilities in Washington and South Carolina.

Procedures for selecting a disposal site would have to be approved by the Legislature, as in the case of the State's recent efforts to deal with the problem of non-radioactive "hazardous" waste. The Legislature would have to pass into law any compact agreement to which Minnesota was a party. Under the terms of a

*National Conference of State Legislatures, "A Legislator's Guide to Low-Level Radioactive Waste Management," Denver, Colorado, May 1981.

compact, a regional waste management system might take a number of forms. Different types of low-level waste might be sent to different states for treatment and disposal, for instance, or all the waste might be sent to one state for treatment and another for disposal. However these arrangements are to be made, the compact agreement must address a number of basic policy questions and/or provide the decision-making process for resolving them.

It will be necessary to determine, for instance, who will own regional low-level waste management facilities, who will manage them, and who will regulate them. Some states have entered into special agreements with the Nuclear Regulatory Commission (NRC) by which they are allowed to assume the NRC's role in regulating certain types of radioactive materials within their borders. These states would be able to assume full regulatory responsibility for regional low-level waste facilities within their borders adhering to the NRC regulation. Minnesota, is one of 24 "non-agreement" states, so any facility located here would be regulated directly by the NRC. NRC is now considering the possibility of establishing more limited

types of agreements with some states, covering only the regulation of low-level waste disposal facilities and/or packaging and transportation of low-level wastes.

Minnesota needs to decide which of these three programs they might choose to assume such a regulatory program. All disposal facilities now in operation are located in "agreement" states: Nevada, Washington and South Carolina. However, one disposal facility was operated for a number of years in Illinois, which is not an agreement state. Most of the states generally considered to be part of the "Upper Midwest" are non-agreement states.

Many of the issues raised here do not have ready answers. Their resolution must ultimately be left to the collective judgment of the citizens of the State. These matters are of special relevance to persons engaged in the practice of medicine, so your participation in the decision-making process will be a great asset. The MMA Resource Group on Environmental and Industrial Health, chaired by Dr. Warren Lawson, will continue to monitor future developments and keep the Association posted.

Physicians in the News

Arden O. Anderson, M.D., of Brainerd, was elected to the 17 member Board of Directors of the American Academy of Family Physicians at its annual meeting held in Las Vegas.

Jeffrey L. Goldhagen, M.D. was recently appointed by the Physicians Metro Health Force Board to represent hospitals which serve children on the Emergency Medical Control and Protocols Committee (EMCAPS) in the metropolitan area.

Lawrence Kaplan, M.D., and Robert ten Bense, M.D., of Minneapolis were appointed to the Metropolitan Health Board's Task Force on Competition, Regulation and Voluntary Action.

Governor Quie has appointed **Dr. George B. Martin, Jr.** of Thief River Falls to the State Board of Medical Examiners. Dr. Martin's four-year term on the Board took effect on March 17.

Dr. C. A. Anderson, was recently named one of the top 10 family physicians in the country by Good Housekeeping magazine and the American Academy of Family Physicians. Dr. Anderson, who said he planned to stay in practice in Hector, for only 10 years, has been there since 1948.

Dr. Benjamin P. Owens of Hibbing has been named Minnesota's Family Physician of the Year. He received the award in Minneapolis at a ceremony sponsored by the Minnesota Academy of Family Physicians.

The Academy annually asks the people of Minnesota to nominate their favorite family physicians for this award.

Rheumatology Corner

Sjögren's Syndrome: Autoimmune Exocrinopathy

JAMES L. REINERTSEN, M.D.*

Percutaneous intra aortic balloon support has been used since 1978. This form of insertion and removal offers several advantages over conventional insertion. We wish to report a case involving repeat insertion through the same arterial site during two separate hospitalizations for postoperative support.

SJÖGREN'S syndrome (SS) is the second most common autoimmune rheumatic disorder, after rheumatoid arthritis.¹ Most patients with SS have an annoying but benign decrease in exocrine gland performance. Some patients, however, develop serious extraglandular involvement. Current concepts of this condition allow the physician to better counsel the patient with regard to diagnosis, treatment, and prognosis.

Classification

Bloch and Bunim's classic paper in 1965² defined SS as (1) Keratoconjunctivitis sicca (KCS) with or without lacrimal gland enlargement, (2) xerostomia with or without salivary gland enlargement and (3) the presence of a connective tissue disease, most commonly rheumatoid arthritis. It has since been recognized that ocular and oral dryness can occur in the absence of any recognized connective tissue disease. This situation is known as sicca syndrome and may be associated with sarcoidosis, hyperlipoproteinemias, and amyloidosis, and can also occur as an effect of anticholinergic drugs or after irradiation. When the sicca syndrome occurs in the absence of any other underlying cause and is shown pathologically to be due to autoimmune lymphoid infiltration, then *primary Sjögren's syndrome* is present. *Secondary Sjögren's syndrome* is diagnosed when a similar clinical and pathologic process occurs in the presence of a connective tissue disease (Table 1).³ Patients with primary SS are more likely to have lymphadenopathy, purpura, Raynaud's phenomenon, renal and muscle involvement than patients with secondary SS.⁴

Clinical Manifestations

Exocrine gland dysfunction, sometimes accompanied by firm, nontender enlargement, is the hallmark of SS. Impaired lacrimal gland secretion leads to destruction of corneal and bulbar conjunctival epithelium (keratoconjunctivitis sicca). Clinically,

patients complain of a dry, sandy sensation. KCS is confirmed by slit lamp findings of filamentary keratitis and punctate corneal ulcerations (after Rose-Bengal staining).

Oral dryness may produce a number of symptoms, including difficulty in chewing, excessive thirst, mucosal ulcerations, severe dental caries, and diminished taste.

Virtually all exocrine glands can be involved. Hoarseness, cough, and increased respiratory infections are common. Atrophic gastritis, pancreatitis, and dry skin have been reported. Vaginal dryness may cause severe dyspareunia.

Extraglandular manifestations of SS are usually caused by lymphoproliferation in the involved organs but can also be due to vasculitis and hyperviscosity. Lymphoid infiltrates may involve any combination of liver, spleen, lymph nodes, lung, kidneys, and muscles. These infiltrates may be either benign or malignant, but precise pathologic diagnosis is extremely difficult, and so the term "pseudolymphoma" has been coined. In some patients, true lymphoma or lymphosarcoma appears to develop, often after years of "pseudolymphoma." Lymphoma appears to be

TABLE 1

Autoimmune Diseases associated with Sjögren's syndrome

Rheumatoid arthritis
Systemic lupus erythematosus
Primary biliary cirrhosis
Polymyositis
Vasculitis
Thyroiditis
Chronic active hepatitis
Mixed cryoglobulinemia
Mixed connective tissue disease
Hypergammaglobulinemic purpura
Total lipodystrophy

TABLE 2

Serologic and Immunogenetic Markers in Sjögren's Syndrome

Primary SS	Secondary SS
HLA-DRw3	HLA-DRw4
anti SS-A	anti-salivary duct antibodies
anti SS-B	anti-RANA

*Department of Rheumatology, St. Louis Park Medical Center, Minneapolis, Minnesota.

more common in patients with a history of parotid enlargement; contrary to previous belief, lymphoma is equally common (5%) in primary and secondary SS. Waldenström's macroglobulinemia has also been reported in SS.

A few (less than 10%) patients develop a vasculitis, with purpura, myositis, mononeuritis multiplex, and occasionally immune complex glomerulonephritis.

Laboratory Findings

Three out of four SS patients have an elevated sedimentation rate, hypergammaglobulinemia and/or positive rheumatoid factor. Most patients will also have one or more other autoantibodies, such as antisalivary duct antibodies, antinuclear antibodies, and antibodies to various extractable nuclear antigens such as SS-A, SS-B, and rheumatoid arthritis-associated nuclear antigen (RANA).⁴ The pattern of autoantibodies in primary SS differs from that in secondary SS; there are also immunogenetic differences between these groups. In general, primary SS resembles systemic lupus erythematosus serologically and immunogenetically, while secondary SS resembles rheumatoid arthritis (Table 2).^{3,4}

Diagnosis

SS is diagnosed when objective evidence for two of three major criteria are present: (1) Keratoconjunctivitis sicca, (2) xerostomia and (3) underlying

autoimmune disease. Since xerostomia is difficult to document, a positive biopsy of a labial minor salivary gland has been substituted for xerostomia as the second criterion in most academic centers. Pathologic findings in SS include clustered lymphoid infiltrates, acinar atrophy, and epimyoeipithelial islands. The Schirmer test for xerophthalmia tends to be unreliable, and a firm diagnosis of KCS rests on slit lamp findings.

Treatment

Treatment of SS aims to relieve symptoms and to prevent local damage caused by exocrine dysfunction. Artificial tears are the mainstay of xerophthalmia management. Many patients develop staphylococcal blepharitis, and prompt culture and treatment is necessary. Topical steroids should be avoided if possible.

The chief hazard of xerostomia is dental decay, which should be managed by scrupulous brushing and flossing, topical fluoride, and avoidance of sugared lemon drops (often used as secretagogues). Frequent fluids, sour sugar-free candies, and oral moisteners (e.g., MOI-STIR®) may be helpful for some patients.

Corticosteroid and immunosuppressive therapy is indicated only for serious or life-threatening vasculitis and lymphoproliferative disease. Frank malignancy requires appropriate multidisciplinary oncologic therapy.

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Minnesota Dermatological Society Elected New Officers

President: Paul R. Vandersteen, M.D. — Fargo, North Dakota.
 President-Elect: Thomas Myers, III, M.D. — Duluth
 Vice-President: Mark V. Dahl, M.D. — Minneapolis
 Secretary-Treasurer: J. Corwin Vance, M.D. — Minneapolis
 Historian: Irvine M. Karon, M.D. — St. Paul

The Summer Quarterly Meeting will be held at the Mayo Clinic on Sunday 12 September 1982. It will be held in conjunction with the annual meeting of the American Dermatologic Society for Allergy and Immunology which will be held at the University of Minnesota on September 9-11, 1982. Please contact Mark V. Dahl, M.D. (President ADSAI) at the University of Minnesota, or J. Corwin Vance, M.D. (Secretary-Treasurer, Minnesota Derm Society) at Hennepin County Medical Center for details.

The Fall Quarterly Meeting will be held at St. Paul Ramsey Medical Center on Friday 12 November 1982.

Drug Profiles

Furosemide

ALLEN VAIDA, R.Ph.;† BART GALLE, Ph.D.*
and THOMAS KELLENBERGER, PHARM. D.†

Furosemide is a short-acting loop diuretic that produces rapid swings in fluid and electrolyte balance. Because it is a renal vasodilator, it frequently is used for hypertension associated with frank renal insufficiency. Despite its potential for causing excess diuresis and consequent dehydration, furosemide is a popular medication in Minnesota, as the accompanying table indicates. During the sample months (November, 1980 and 1981), furosemide accounted for 44% of the diuretics prescribed for Minnesota Medicaid patients in the age categories listed. In both study years, more than 51% of Medicaid patients 80 or older on diuretics were taking furosemide.

Absorption

Rapidly absorbed after oral administration, with an onset of action within one hour and a duration of action from 6 to 8 hours.

Bioavailability is variable, with 30 to 60% often cited. Upon I.V. administration, the onset of action is within minutes.

Distribution

The apparent volume of distribution usually ranges between 0.07L/kg and 0.2L/kg.

Exhibits a high degree of protein binding (90-95%), but displacement by other drugs doesn't seem to pose any problems.

Metabolism

Extent of metabolism is uncertain and any metabolites formed are thought to be inactive.

Excretion

Rapidly excreted into the urine by glomerular filtration and tubular secretion. This route

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Prescriptions for Diuretics Reported for the Minnesota Medicaid Population, November 1980 vs November 1981						
Medication		Number of Prescriptions by Age of Recipients				
		40-49	60-69	70-79	80-up	Total
Lasix	1980	120	622	1438	4051	6231
	1981	83	393	877	2632	3985
HCTZ	1980	139	358	466	768	1731
	1981	92	181	291	520	1084
Hygroton	1980	41	85	149	169	444
	1981	23	67	88	115	293
Spironolactone	1980	20	79	139	205	443
	1981	21	51	88	173	333
Diuril	1980	18	43	70	151	282
	1981	2	8	7	23	40
Combination drugs such as Dyazide, Aldactazide, etc.	1980	314	843	1460	2578	5195
	1981	181	534	946	1585	3246
Total	1980	652	2030	3722	7922	14326
	1981	402	1234	2297	5048	8981

accounts for more than 70% of the drug's elimination, with the remainder being excreted in the feces.

Half-Life

Plasma half-life is between 30 and 70 minutes in patients with normal renal function. This may be increased significantly in patients with decreased renal function.

Interactions

Orthostatic hypotension may be experienced when furosemide is given with barbiturates, alcohol or narcotics.

May cause potassium depletion, which could lead to digitalis toxicity when the two are used together. This is a common combination, especially in elderly patients.

Its potent diuretic action also causes sodium depletion, which can lead to a decreased clearance of Lithium and resulting Lithium toxicity.

Dosage Considerations

As with all therapeutic regimens, the lowest possible dose to achieve the desired effect should be employed.

Initiate low starting dosages, around 20mg, which may be increased to a twice-a-day or larger once-a-day regimen. Patients with decreased renal function may benefit from large doses. Although the half-life may be increased, furosemide is usually a good diuretic in people with poor renal function who don't respond to less potent diuretics.

May cause annoying G.I. upset, which may be alleviated by taking the dose with food.

The drug may cause ototoxic effects, but this is usually seen with the rapid administration of the drug parenterally.

Clinical Comments

Furosemide is a potent diuretic compared to the thiazide and potassium sparing agents. For this reason it may be more prudent to start with one of the other agents when initiating diuretic therapy.

Not a drug at first choice in ascites because hypovolemia and a hypokalemic metabolic alkalosis, which furosemide may induce, can further aggravate the condition.^{3,5}

The hypokalemia seen with furosemide and other diuretics is usually accompanied by hypochloremia. For this reason, when replacing potassium in these patients a potassium *chloride* product is recommended. Products which contain gluconate, citrate, carbonate or bicarbonate will not replace the chloride and consequently potassium will not be retained to any great extent. These products will also further aggravate an alkalosis if present.

Although reported cases of cross-sensitivity to sulfonamide allergy have been reported, they are very infrequent.

An early morning dose to prevent nocturia is usually employed and may be especially useful in the elderly, who may have decreased bladder capacity and control.

Most elderly follow an erratic diet and are more prone to hypokalemia. Patients who present with weakness and muscle cramps may not be concerned, thinking it is just the aging process.

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The Physician's Sleep Glossary

Some common sleep laboratory terms

poly·som·no·graph. An instrument which simultaneously records by electrodes physiological variables during sleep—for example, brain activity (EEG), eye movements (EOG), muscle tone (EMG) and other electrophysiological variables. These readings indicate precisely when patients fall asleep, how many wake periods they experience, the quality of sleep and the duration of sleep.

sleep la·ten·cy. The period of time measured from "lights out," or bedtime, to the commencement or onset of sleep.

wake time af·ter sleep on·set. Intervals of time spent awake between onset of sleep and the end of the sleep period. The polysomnograph registers the length and frequency of the intervals.

to·tal sleep time. The amount of time actually spent in sleeping. This is estimated by subtracting wake times from the period encompassed by the onset and the termination of sleep.¹

REM/NREM. 1. REM, or rapid eye movement, sleep is "active"—characterized by increased metabolic rates, elevated temperature and arousal-type EEG patterns. 2. NREM, or non-rapid eye movement, sleep represents "quiet" sleep stages. There are four distinct stages of NREM sleep.²

re·bound in·som·nia. A statistically significant worsening of sleep compared to baseline on the nights immediately following discontinuation of sleep medication.³

Efficacy objectively demonstrated in the sleep laboratory—the most valid environment for measuring hypnotic efficacy.

In numerous sleep laboratory investigations patients fell asleep sooner, slept longer and woke up less during the night³⁻¹² with

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The efficacy of Dalmane has been studied in over 200 clinical trials with more than 10,000 patients.³⁻¹⁵ During long-term therapy, which is rarely required, periodic blood, kidney and liver function tests should be performed. Contraindicated in patients who are pregnant or hypersensitive to flurazepam.

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Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, light-headedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



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Retirement

JOHN T. PEWTERS, M.D.*

This is a very personal article. It is *my* retirement. Only one go at it.

I am 70 years old. Since age 65 years, I have considered retirement. For several reasons retirement was postponed. These past five years I have read, clipped and saved a carton of articles on the retirement subject.

There will be no attempt in this article to involve financial planning. Everyone's finances are different. Financial retirement planning should be started from practice "day one". This article is an outline of steps taken to assure peace of mind that I have done; what is needed to close forty-three years of urban general/family practice with partners.

First, in a relaxed atmosphere, visit with your attorney. It helps to be a client of a firm that handles many doctors, does medico-legal work and over the years knows your personal life style. My basic attorney and his firm assist two major malpractice insurers, my hospital and have various medical interests.

Next, plan a meeting with your medical management consultant. I have the advantage of a consultant to several medico-socio, practice oriented national medical magazines. He has handled by business affairs for many years.

Consult your medical malpractice carrier for their suggestions.

Then you are ready to make your own master list. Go into action!

1. By letter, notify your partners. Comply with the provisions of your partnership or work contact for retirement. Have them sign and endorse your letter. (Exhibit A).
2. Compose the letter to your patients yourself; your words — your feelings. The letter should include date of planned retirement, thank you to your patients for their loyalty, suggestion to carry on with your partners and, of course, the legal way to transfer information if the patients choose a new M.D. (Exhibit B).

*Family Physician, Minneapolis.

John T. Pewters, M.D.
2645 First Avenue South
Minneapolis, Minnesota 55408

August 1, 1981

Drs.
2645 First Avenue South
Minneapolis, Minnesota 55408

Dear
Per our conversation a few weeks ago, I plan to retire January 28, 1982. I am assuming this decision meets with your approval.

Sincerely,

John T. Pewters, M.D.

cc: Lawyer
Medical Management Consultant

Approved:

1. Partner (signed)
2. Partner (signed)

Exhibit A

John T. Pewters, M.D.
2645 First Avenue South
Minneapolis, Minnesota 55408

October 15, 1981

Dear Patients and Friends:

I plan to retire from the practice of medicine on January 28, 1982. Forty-three years of Family Practice have been rewarding and pleasurable. I will miss the satisfaction, trust and loyalty of caring for you many faithful patients. Without the help of partners, staff and fellow doctors, I could not have done it.

Thank you all!

I urge you to remain with Drs. _____ at this address for your future continuing medical care. These doctors have your records and most of you patients know them.

If you desire to transfer to other care, we need your written signed permission directed to the physician of your choice. A resume of your records will be promptly sent to the doctor.

With regrets I feel the time has come to quit and smoke my pipe.

Sincerely and thank you,

John T. Pewters, M.D.

Exhibit B

You keep the original chart, ledgers, records and Xrays. You may photocopy, abstract or send pertinent medical data to their new M.D., but *you* (or your partners) keep the chart.

A brief of Minnesota statutes regarding the rights of patients and yourself on record transfer information is listed in Exhibit C.

The letter to the patients should be sent three to six months before retirement date. Why? While most specialists see the patient in episodic care, the generalist/family internist and pediatrician, are involved in continuing care. To whom do you send the letter? Patients seen the past year or ten years? I went back only one year because of the volume. Printing, typing, stamps, etc., came to quite an amount.

We found out in a hurry that patients were getting prescription refills that I had not seen in the past year.

So! When prescription refills were necessary, the amount was limited to retirement date. Also, I asked the druggist to remind the patient that I was retiring on a certain date. The druggists were most helpful and cooperative.

These retirement notices caused the patients to come to the office, ask for data transfer to other M.D.s or signify that the patient wished to continue with my partners.

Interesting side note; 90% of my patients are continuing care with my former partners.

3. Change your narcotics license to your home address? Narcotic license continuation is debatable for several reasons. I personally think this license should be dropped. Destroy all Rx blanks with your name on them.
4. Keep your state medical license to practice. Change to your home address. Keep up your continuing medical education credits if your state requires CME. Minnesota requires CME proof every three years.
5. Secure your endorsement policy from your medical and malpractice carrier if on a claims made basis. My carrier says if over sixty-five years old, policy holder for over five years and completely retiring from practice, no further premiums or tail. I am pleased with their cooperation.
6. Write your county and state medical societies and the American Medical Association to find out where you stand on Life Membership. Requirements may vary from location to location.

Contact your specialty society and board. The American Academy of Family Practice charges a modest yearly \$10 for life membership.

The above two steps are important if you carry any of the many group insurances offered by county, state and national organizations.

7. Ask the hospitals that have given you staff privileges over the years to place you on their Honorary List. You might get a plaque; I did!
8. Telephone listings. Drop the yellow pages. Drop the lines in the white pages that give answering services or alternate M.D.s You might even want to drop the M.D. after

Minnesota Law on Patient Access to Records

Minnesota Statutes Chapter 144.335 provides "*Upon request* a provider shall supply to a patient complete and current information possessed by that provider concerning any diagnosis, treatment and prognosis of the patient in terms and language the patient can reasonably be expected to understand."

"*Upon a patient's written request*, a provider at a reasonable cost to the patient shall furnish to the patient: a) copies of the patient's health record, including but not limited to laboratory reports, Xrays, prescriptions and other technical information used in assessing the patient's health condition; b) the

pertinent portion of the record relating to a specific condition; or c) a summary of the record."

"If a provider, as defined in subdivision 1, clause (b) (1), reasonably determines that information is detrimental to the physical or mental health of the patient, or is likely to cause the patient to harm himself or another, he may withhold the information from the patient. The information may be supplied to an appropriate third party or to another provider, as defined in subdivision 1, clause (b) (1). The provider or third party may release the information to the patient."

Exhibit C

RETIREMENT — PEWTERS

your name in the white pages.

9. Notify your answering service according to your contract. I plan to keep the answering service for three months after retirement. This service will refer any calls to my former partners.

Don't leave town the day after retirement. Your former partners and staff will appreciate your help with the final insurance forms, diagnoses and summaries of charts for transferring patient care.

Retirement anticipation is one thing. Actual retirement, actual date, walk out — is another thing. I never realized the emotional factors. The outpouring of the patients "thank you" is tremendous. Gifts, notes, letters, cards, words, hugs, honors, tears — you name it.

The fitting climax is not recognition by your peers, hospital and patients, but your staff.

Our present staff put an ad in the "Personals" of the newspaper. They planned a party. Of course patients saw the ad and called me. Why the ad? Are you sick, dead or what? I put two and two together, tortured my wife until she told me that a party of former employees was planned.

I never let on that I knew. On January 28, by seventieth birthday, *many* former employees gathered at the building I built and toasted my exit.

This personal article could help smooth *your* retirement. It did *mine*.

MINNESOTA MEDICINE Winter Covers

The cover editor would like to solicit photographs for next winter's covers concerning the possible vacation places that many persons travel to from this area. Many Minnesotans vacation out of state during the winter months including such areas as the mountains for skiing, the Caribbean, Florida, the desert states, and possibly Mexico. The editor would like to receive scenic photographs of some of these vacation areas in the hopes that MINNESOTA MEDICINE could have a winter series on some of these areas.

Konopka Lectureship

"Agenda for the 1980's: Juvenile Justice Reform" will be the topic of the Fourth Annual Gisela Konopka Lectureship, sponsored by the Center for Youth Development and Research. Rosemary Sarri, University of Michigan, will be the featured speaker for the June 9th, 1982 talk. She will address such issues as the impact of juvenile justice on the family, institutionalization, gender factors, and alternatives to the present system. The lecture will begin at 4:00 p.m. in 33 McNeal Hall on the St. Paul Campus of the University of Minnesota.

Following the lecture a reception will be held in 386 McNeal Hall.

Continuing Medical Education

Black Hills Seminar

The Fifth Annual Black Hills Seminar on Advances in Clinical Pediatrics — June 16-18, 1982, at Sylvan Lake Resort, Custer, South Dakota, sponsored by the Department of Pediatrics and Adolescent Medicine, University of South Dakota School of Medicine. Guest faculty include Drs. Hugh Moffett, Jane Schaller, Sylvan Stool and William Strong. For complete conference information contact:

Lawrence R. Wellman, M.D., Program Coordinator, Department of Pediatrics, University of South Dakota, School of Medicine, 1100 S. Euclid, Sioux Falls, South Dakota 57117-5039, 605-339-6578.

Good Health is Not for Sale — What Then are Doctors For?

"That's all very well and good, but you gotta know the territory."

Meredith Wilson — The Music Man

JOHN E. SMITH, M.D.*

TO DISCUSS THE territory, we need a definition. The World Health Organization, WHO, should know something about it (pun), calls health a "State of complete mental, physical, and social well being. . . ." To attain this would require honest government, efficient inexpensive transportation, effective police protection, adequate incomes, and other things lying outside the competence of medicine to provide. They probably lie outside the scope of any health care system that could be devised. It is not that medical care is good for nothing, just that it is not good for everything.

The bounding health, vitality and vigor enshrined in that definition is not realistic. Few of us feel like that for any length of time. It would be perfection; yet too many patients and even their doctors have come to think of it as the norm. In medicine, perfection is not achievable. Because of decreasing benefits for huge increases in costs, we should not even strive for perfection.

A better definition of health would be, "The optimal adjustment of individuals to their internal and external environment". This statement doesn't charge forward singing as does the World Health definition, but it is focused, realistic, and achievable; yet still maintains the concern of medicine for the whole persons and for the place where they live and work and have their being.

The goal of health care then would be "optimal achievable" rather than perfection. Even this more modest goal is still too large an obligation for doctors to accept for we have been trained in medical care, which is only a small subset of health care. A medical care system of doctors, drugs and hospitals can affect only a small part of the standards by which we measure health such as infant mortality, days lost from work, longevity, and a general sense of well being.

The dramatic improvements in the health of a nation come from sanitation, the cleaning of a water supply, not medical care; from improved diet or immunizations, not more doctors; from environmental changes and modifications of lifestyle, not easier access to clinics. Neither HMOs nor federal programs can maintain health, they cannot even provide health care. They

can provide more medical care, but increasing the quantity of medical care delivered beyond a certain point does not increase the quality of health in those accepting delivery, it only increases the cost.

Spectrum of Medical Costs

The cheapest medicine is pioneer medicine; no doctors, no hospitals, no nurses, no drugs; just home remedies and a shovel to bury the dead to prevent spread of disease. As civilization moves in then some doctors become available to set broken bones and to remove bullets. This is the acute care era of cowboy medicine. Definitely a benefit, but only temporary, for eventually a shovel will still be needed. If a surplus of physicians and money is available, then you can begin treating well people to keep them from getting sick. This is extraordinarily expensive. The number of diseases a person can have and be treated for is necessarily limited. The number of diseases you can try to prevent people from having is infinite. Trying to keep people well costs money. Prolonging life usually meets with individual favor, but it costs money. If the system is trying to save money, then the sooner you die the less money is spent on your health care.

To make best use of that powerful drug called "Doctor" we have to keep reminding planners, patients, and even physicians that providing acute episodic medical care is what doctors have been trained to do, is what we do best, and it is cost effective. When it occurs in the office of a family doctor it is the best medical buy in town. Common sense, tincture of time, simple remedies, and judicious use of the telephone will decrease the cost of even this best buy. An unnecessary visit not made is a real cost saver. If it's not broken, don't spend money to get it fixed.

As third party payors assume a larger portion of direct payment for medical services, the out of pocket share of individuals decreases and their awareness of that share also decreases. When all financial restraints are removed and free health care becomes everybody's right, then demand will increase. This happens whenever anything is priced below market value. When the cost approaches zero then demand approaches infinity. With finite resources and infinite demands, medical care will have to be rationed.

*Minneapolis, Minnesota

Rationing Health Care

There are many effective ways to ration health care: dollars, distribution, delay, distance; but these seem more like problems to be solved rather than solutions. Moreover, physicians should not have to do the rationing for they must remain the advocate of the patient and provide all the medical care necessary for that individual, regardless of cost. Let others attend to the cost-benefit ratio and community needs. The focus of the physician must remain that of caring for individual patients. When patients place themselves under the care of a physician, from then on the physician becomes the consumer on behalf of that patient. He becomes their advocate to obtain all of the medical care necessary with cost being only of peripheral importance. The individual patient must come first; before the needs of the hospital, the insurance company, or the community. One of our jobs as physicians is to minimize the cost of illness to the patient, not to a third party carrier. If a policy is written so that reimbursement is forthcoming only in a hospital setting, then that is the most appropriate place for medical care.

Medical Care is Different from Health Care

Part of the increase in health care costs has been the blurring of the distinction between medical care and health care. The Federal emphasis inflating the importance of maintaining health and preventing disease is self-defeating. The search for perfect health leads to a demand for medical treatment for every kind of discomfort. Life becomes a series of semi-illnesses requiring therapy instead of a succession of different kinds of health. People have become patients without being sick. The Federal concept is that we are badly designed, fundamentally fragile, and dying from the moment of birth. Without professional attention, constant surveillance, and patching up, we would fall apart. With this bias we are in danger of becoming a nation of healthy hypochondriacs, so fearful of the future that we are unable to enjoy the present. It is unhealthy to be that concerned with health; especially since in real life we are of excellent design, amazingly tough and durable, and possessing remarkable recuperative and defensive powers when disease does strike.

Also in our favor is that most illnesses *are* acute and self-limiting. Most things *do* get better by morning. Most diseases are transient reversible affairs that need little more than grandmother's advice for getting through safely. We have been taken in by the gloom-sayers and that is not only bad for the spirit, but will make any health care system, no matter how large and efficient, unworkable. If people are educated to believe they require constant medical support even for minor illnesses, and when well are still dependent on

an imaginary discipline of preventive medicine, then there is no limit to the number of doctors, offices, clinics, and hospitals required to meet the need. To teach our patients to rely this heavily on a physician is unhealthy; to begin to believe it ourselves is even worse.

Preventive Medicine

Doctors and medicine have both been oversold. Good health is not ours to sell. Our knowledge and our expertise are inadequate; the present state of our art is incomplete. With a few outstanding exceptions we cannot prevent disease, we cannot maintain health, and only sometimes can we postpone dying. We do know that for some diseases early diagnosis prolongs survival following diagnosis, but we don't know if patients actually live longer or are just diagnosed longer. Until we do learn real prevention, we do what we can by giving acute episodic care to sick people. Even this cowboy medicine is straining our medical and financial resources. If we add to this already strained system the need to do something for healthy people (preventive medicine) it will add further to the cost and fill our offices with the totally well and the worried well. There will be no room for those who need to see a doctor because they are sick.

Preventive medicine belongs in the home, not in the doctor's office. It is something you do, not something you get. "It is what we do hour by hour, day by day, that determines the state of our health; whether we get sick, what we get sick with, and perhaps when we will die." This theme from *FEELING GOOD*, a nationally televised weekly series on health, puts responsibility for prevention where it should be, on the individual rather than the physician. It also provides the reason for the practice of prevention in our daily lives and in our office. Even Satchel Paige had simple and achievable rules for doing something about his own health. "Avoid fried foods which angry up the blood. If your stomach disputes you, lie down and pacify it with cool thoughts. Keep the juices flowing by jangling around gently when you move. Go very light on the vices such as carrying on in society as the social ramble ain't restful. Avoid running at all times. Don't look back, something may be gaining on you."

Gatekeepers

All doctors have an instinctive dislike for the tendency of society to make us its gatekeeper; deciding who should have sick leave and for how long. Who is disabled and how much, who is eligible for a tax deductible air conditioner, who rates a handicapped parking spot, who needs a ground floor apartment in the senior citizen high rise, or a school bus, or a special diet at work, or a special appliance at home. Most of these are not medical decisions, but rather are "should-society-pay-for-them" decisions which no

one else wants to make and which therefore have become medical.

Distribution of Services

Maldistribution of physicians is another of society's problems which we have been asked to solve. Why aren't there more small town clinics? Why aren't more rural physicians available? Probably for the same reason that there aren't more firemen or department stores or movie theaters in small towns. People tend to crowd into metropolitan areas and services end up where the people are. Doctors too seem to prefer the fringes and stimulation of larger towns. Are they wrong in living where they want to live or do rural people have a "right" to these services? In a totalitarian society people with special skills can be forced to live and work where they are needed. So far that has not been our way of doing things.

Global Concerns

As physicians all of us must be concerned with comprehensive care and even "holistic" medicine, but we stray from the mark when our concerns become too global. Our patients will be best served and our abilities will be best used if we focus on the care of individuals rather than on society as a whole. We can affect society by caring for individuals much better than we can help individuals by serving as experts for all of society's ills. Even at the community level, its health needs will be best served if we maintain our focus on individuals, for community interests are not always the sum total of individual interests, and individual needs are frequently not met by satisfying community needs.

How to use the System

The interest of each individual patient, and in aggregate the entire community will be best served when patients each have a primary physician to act as their doctor and advocate in dealing with the health care system. This should be the first goal of health care planning. One physician with a name and face rather than a group where continuity of care is given lip service by passing a chart to the physician coming on duty. Your own doctor, not a clinic where after hours and holiday care is handled by an answering service referring patients to the nearest hospital emergency room.

Our number two priority should be to provide full-time emergency coverage; but patients should be taught to use it for emergencies rather than for convenience. The hospital itself should be maintained on the periphery of care — a thing to be avoided — rather than at the center of the circle radiating its expensive services in ever enlarging circles of community outreach programs.

Our third priority should be to provide continuing comprehensive care for chronic illness, and our fourth priority should be to provide preventive care for well people.

Very last on our list should be the common consumer crusades concerning the demystification of medicine, generic prescriptions, language services, babysitting and non-physician patient advocates. These last concerns of the vocal minority have little relationship to quality medical care, and, in truth, sound like a Christmas list for somebody who already has everything.

What, then, is left for doctors to do? That which they have always done best, giving acute care to sick people. That and trying to coordinate all the other parts of the system into a comprehensible whole. That and trying to learn how to motivate and educate people in self-medicine, self-prevention, and change in life styles. The function of medicine should be to help people not die young — as late in life as possible.

This, then, is what doctors are for; the care of sick people. Not to be gatekeepers or to take care of well people; not to hold down costs or even to make cost-effective decisions. Not to care for communities or for man in the aggregate but to care for and about individuals. From the beginning medicine has been a personal, one-to-one, face-to-face relationship between a doctor and a patient. The success of this joint relationship requires that both their needs be met. The patient to share in the physician's knowledge, the physician to be somehow rewarded for the sharing. To make the relationship most therapeutic the physician must love in the root sense of the word. Not the abstract, "Love your neighbor", but the caring for this patient in spite of his undesirable attributes.

Best Patient Advocate

The clear duty and salvation for all physicians is to act as an advocate for their patients in dealing with the health care system. If we can demonstrate that we are in front clearing the way, rather than obstructing progress with our hand out, then such bad legislation as generic prescriptions, Laetrile, and expanding the scope of Chiropractic would be dead issues. Trying to legislate good health produces neither good legislation nor good health.

In all of the interactions among the mysteries of medicine, we must therefore be an advocate for our patients. By we, I mean all physicians, but being a family doctor I am most familiar with the economies and efficiencies of that type of practice. Besides it's fun being a family doctor. Hardly a day goes by that I don't learn something from reading or reflection or referral. Something important, that has immediate bearing on

some patient under my care. This breadth of concern is appealing both to patients and to graduating physicians, and is reflected in the following LITANY OF FAMILY PRACTICE, adapted from Dr. David M. Collins, Louisville, Kentucky.

Since I am not a surgeon, I see medical patients; since I am not an internist, I see surgical patients and children as well. I am not a pediatrician, however, which means I see adults; males because I am not a gynecologist; females because happily there is no specialty which excludes them, and since women do get pregnant and need a doctor to attend them I deliver their babies. I am not a psychiatrist and therefore can discuss without scientific qualms those purely moral and ethical questions which from time to time preoccupy patients. I am not a moralist or a cleric so I have no hesitation in treating depression or anxieties or in dealing with the irrational and intangible fears and obsessions that also occupy their thoughts.

In spite of the name change, I am in fact a generalist, not a specialist, in medicine, and therefore impose on my patients no limitations as to their age, sex, race or station; nor on the kinds of problems for which they may consult me. My job is to broaden the base of concern, to synthesize, to widen skills and to accept responsibility. I am accessible. I deal endlessly in the knotty and sometimes unsolvable problems of human beings; be they medical or surgical, organic or emotional, real or imaginary. Often as not, where science or my own wit provide an answer, I treat and cure, or at least control. But even when I must refer, I try never to fail to solve that most basic of all problems; identifying and describing that problem. I will, even in referring, have relieved the pain of not knowing, the doubts, the anxiety, that first brought the patient to my examining room. I will have named the problem.

Family Practice embraces all those amorphous problems, not only medical, not only surgical, not only psychiatric, that are the imprecise and circumstantial stuff of human existence. As a specialty, therefore, it has no limits nor rules; no content nor substantive domain uniquely its own. It includes all of reality, all of anything a patient may need or want to bring to the physician's attention.

To be Called to a Profession

As a professional, doctors are experts in their fields.

It is on the basis of this special knowledge that doctors ask to be trusted. It is our professional competence that we know, better than the patient can know, what is ailing them and what can be done about it. A profession used to be synonymous with a vocation, from the French "vocare" to call. A person was called by God to be a prophet, priest, prince, or professional. To be called was to be singled out for a particular task and carried with it a profound obligation. Distilled to its essence, the obligation of medicine is still to care for patients; to care about them while caring for them.

None but a saint could follow this precept all of the time; but so many doctors have followed it so often that the profession has generally been held in high regard. People still need a doctor whom they can trust to do all that can be done for them. In our new technological world it is more desirable than ever that patients be under the care of a doctor who takes full responsibilities for them, sees them as a whole, and protects them, if need be, from some of the marvels of modern medicine.

Doctors all have their faults, but taken together I find them to be an extraordinary group of human beings. People are people before they become doctors. Capable and sensible individuals make of themselves capable and sensible doctors.

As Robert Louis Stevenson, the English poet said, "There are men and classes of men who stand above the common herd; the soldier, the sailor, and the shepherd not infrequently; the artist rarely, rarer still the clergyman; the physician almost as a rule. He is the flower of our civilization (such as it is) and as such, shares as little as any in our defects, and most notably evidences the virtues of our race. Generosity he has such as is possible to those who practice an art, never to those who drive a trade. Discretion tested by a hundred secrets, tact tried by a thousand embarrassments, and what is more important, cheerfulness and courage. So it is that he brings cheer into the sick room, and often enough, but not as often as he would like, brings healing."

To emphasize the last line; a physician brings cheer, courage and healing to the sick. That my friends, in popular parlance, is the bottom line and is what doctors are for.

MINNESOTA MEDICINE Change of Address

Please change your records to list our address as 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414.

We are still receiving mail at our old St. Paul Address, and the mail will no longer be forwarded to our present address.

Minnesota Medical Association

from

Division of Socio-Economic Affairs

Charles W. Wiger, Director, Division of Socio-Economic Affairs
Lynn R. Gruber, Director, Department of Medical Services and Research
George C. Lohmer, Jr., Director, Department of Health Planning
Kathy Meyerle, Director, Department of Legislative Affairs/Legal Counsel

Department of Health Planning

Congress Discusses Health Planning Legislation

With federal funding of the network of Health Systems Agencies (HSAs) and State Health Planning and Development Agencies (SHPDAs) slated to end September 30, 1982, several members of Congress are renewing their interest in health planning. Representative Henry Waxman (D-California) recently introduced a bill which would allow much of the current health planning structure to remain intact with an authorization level of around \$100 million. Primary changes proposed by Representative Waxman include: making the program voluntary, significantly increasing the responsibility and authority of governors to determine the shape of health planning programs within the state, and requiring significantly higher contributions from non-federal sources for local planning.

Bills are also being drafted by Senator Lowell Weicker (R-Connecticut) and Representative Edward Madigan (R-Illinois). Senator Weicker's draft bill concentrates resources on the state health plan and the Certificate of Need programs. He proposes some funds for a few "market reform experiments" as alternatives to CON. He also proposes that federal funds would be available to match private, non-provider contributions to support cost containment activity. Senator Weicker's proposal would require governors in states that participate in the planning program to establish an advisory council, composed primarily of major purchasers of care, to review and comment on the performance of the planning system. Legislation proposed by both Representative Waxman and Senator Weicker would treat 1983 as primarily a transition year and would keep federal CON requirements essentially as they are now. Representative Madigan proposes an authorization of \$50 million available to states in a "block grant" form. The bill contains a requirement that states have an operating Certificate of Need law.

The MMA Department of Health Planning will continue to follow developments at the national level on new health planning legislation.

New Developments at the Metropolitan Health Board

Changes at the Metropolitan Health Board (MHB) may help it weather federal funding cuts and survive with local support. While the claim that the Health Board has "embraced competition" is overstated, three separate actions reflect attempts to regain its community base of support.

Revised Phase IV Report Adopted

In mid-April, 1982, the Health Board adopted a much-changed version of their Phase IV Report. Completion came approximately one year from the earliest drafts of the report which caused so much controversy within the health care community by categorizing hospitals as "competitive", "less competitive", "least competitive", and "at risk". The draft which went to public hearing was less inflammatory in tone, but no more acceptable to significant segments of the health care community. That version suggested alternative ways for the community to excise 2,000 hospital beds identified by the Health Board as "excess capacity". The final report adopted by the Health Board encourages competition among hospitals, rather than hospital closures, to control health care costs.

Blue Ribbon Task Force Recommendations

Following the controversial hearings in autumn 1981 on the Health Board's Phase IV Report, and to an extent because of it, the Metropolitan Council (parent organization to MHB) formed a blue ribbon task force to recommend how health planning activities for the metropolitan area could be conducted in the future. That Committee's report, just released, recommends a new name (Metropolitan Health Planning Board) and a new role for the Health Board. The new Board would not have regulatory authority, but would act as a public forum for the identification of critical issues and alternative solutions. The new Board, which would have fewer

members, would not attempt to implement any of its own recommendations directly. However, implementation of the new role is dependent on federal funding and its requirements. The Physicians Metro Health Force has advocated for implementation of the new role as rapidly as possible or for the Metropolitan Council to seek an exemption from federal requirements if federal funds are still desired for local planning efforts.

Task Force on Competition, Regulation and Voluntary Action Named

Striving to incorporate competition approaches in their planning efforts, the Metropolitan Health Board (MHB) appointed a Task Force on Competition, Regulation and Voluntary Action in April 1982. The Task Force will focus on public policy and specific implementation strategies to ensure equitable health care in a restructured health care system. As part of its charge, the task force will review the reports of the Citizens League, the Minnesota Coalition on Health Care Costs, and recommendations other local and national groups that have addressed the concept of price competition in health care. Task Force members are: Elaine Voss, R.N., Chairperson (nurse, provider member-Metropolitan Health Board), John Bluford (Hennepin County Medical Center), Robert Bunting, Ph.D. (Macalester College), Tom Galligan (Control Data Corporation), Pat Hasselmo (member-Metropolitan Council), Coral Houle (International Childbirth Education Association), Verne Johnson (General Mills), Lawrence Kaplan, M.D. (Share Health Plan, provider member-Metropolitan Health Board), John Kralewski, Ph.D. (University of Minnesota), Tobey Lapakko (Minnesota AFL-CIO), Lu Molberg (health care consultant), Charles Neerland (Northwestern National Bank), Arthur Noot (Department of Public Welfare), Fred Sattler (Northwestern National Life Insurance Co.), Robert ten Benschel, M.D. (University of Minnesota).

MMA to Study M.D. Perceptions of Medical Manpower Needs

How many physicians are needed in Minnesota? Do we have too many? Too few? Past econometric and formula-based projections on a national scale have predicted a physician shortage and, more recently, a physician surplus, without ever having reached an optimum level. On April 24, 1982, the MMA Board of Trustees approved funding for a study to determine what Minnesota physicians think about how many physicians will be needed in our state in the next 5-10 years. The MMA hopes to contribute to this body of research through a study which will be of interest to physicians, legislators, and policy-makers for the medical schools in the state.

The study will be directed by the MMA Committee on Long Range Planning, chaired by Gordon S. Landsman, M.D. of Minneapolis. The contract for conducting the study has been awarded to the Foundation for Health Care Evaluation. The Foundation competed successfully with five other consulting firms that submitted proposals to conduct the survey.

Surveys will be sent to a random sample of physicians during the summer. Physicians receiving questionnaires are urged to complete and return them promptly. If you have any questions, contact the MMA Department of Health Planning.

**Cover Photograph
"Parade of Moccasin Flowers"**

Dr. Carl M. Kjellstrand, Professor of Medicine and Surgery at the University of Minnesota, is practicing in the Regional Kidney Disease Program at Hennepin County Medical Center, Minneapolis.

He took the cover picture on one of the portages between Grace Lake and Phoebe Lake in the Sawbill Trail Area in the Boundary Waters Canoe Area. It was early in June, 1981, and he and his wife were up there canoeing.

The camera used was an Olympus 2, with Olympus Automacro lens 50 mm 1:3.5; time of day approximately at noon. Kodachrome 64 film was used.

Dr. Kjellstrand advised the editors that the Moccasin Flower is also called the Stemless Ladyslipper, and is a close relative of the Showy Ladyslipper, the Minnesota State Flower.

His cover "Early Spring in Minnesota" published on the March, 1979, cover of MINNESOTA MEDICINE won the outstanding cover award for 1980.

Legislature

Keys Bills not Becoming Law

Workers' Compensation Changes — Physician Reimbursement Cap at 60th Percentile, Reporting Penalties: Utilization Review-Vetoed — HF 1220 (Simoneau)/SF 1579 (C. Peterson)

Reporting to the Legislature as required by 1981 amendments to the workers' compensation law, Insurance Commissioner Michael Markman recommended 42 changes in the system aimed primarily at benefits and determination of loss and disability. Labor leaders and the DFL majority in the Senate reacted with vigor, drafting their own bill which would mandate premium reductions (a goal highly sought after by the business community), but impose significant changes and penalties on the employer, insurance company and health provider systems without substantially affecting benefits. Benefit adjustments related to elimination of so-called stacking provisions and a limit on death benefits.

Seven sections directly affected physician practice. Several sections were good, but some, including a lowering for the second year in a row of the fee level of reimbursement, were totally unacceptable to medicine. The MMA, along with other health providers, insurers and business groups urged a veto — which Governor Quie did on March 24, 1982. In his veto message, however, the Governor focused on a provision which would have created a competitive state insurance fund to write workers' compensation insurance coverage. If this provision would have been deleted, the MMA isn't certain whether the bill would have been vetoed.

The provisions which affect physicians are as follows:

1. Lower Maximum Fee to 60th Percentile of Previous Year's Charges. This section would have put the work comp system almost as low as the Medicaid schedule. It would penalize specialists and new practices. Only rural areas, long established practices with low overhead and non-specialists clinics would receive their full fee under this provision. The patient's freedom of choice would be effectively eliminated under this type of provision since many physicians could be expected to refuse to treat work related injuries.
2. Impose a System to Determine Overutilization and Make Overutilization of the Work Comp System Grounds for Discipline by the Board of Medical Examiners. The Commissioner of Insurance would be required to set up a system to determine overutilization. Physicians found by this system to be overusing the system would be barred from receiving payment on work related injuries. Licensing boards would be able to suspend licenses based on findings by this system.
3. \$200 Fines Imposed for Failing to File Reports Promptly. Patient's Privilege is Waived and Insurance Companies and Employers May Demand Reports on Worker's Progress. The bill would require physicians to send reports to insurers and employers within seven working days of receiving the request or be fined \$200.
4. Prefer Employer Physician Over Treating Physician. In disputes relating to disability between the treating physician and the employer's physician, the insurance company would pay on the basis of the employer's physician's determination. The Court of Appeals could order another disability rating.
5. Permanent Partial Loss Formulas/AMA Guidelines. The Commissioner of Insurance would be required to establish procedures to determine the percentage of partial loss of function of a part of the body by January 1, 1984 or the AMA Guidelines on Disability would become the state standard.
6. Mandated Second Opinion. The provision in current law allowing the worker and employer to agree to waive a second opinion evaluation for elective procedures would be eliminated.
7. Medical Testimony Eliminated. In disputed cases before the Workers' Compensation Court of Appeals the medical report would replace medical testimony, unless the compensation judge ordered the appearance of a witness.

When the bill faced final passage in the Senate, the MMA — working with other health groups — attempted to remove the fee schedule provision. The "MMA Amendment" (remove the fee schedule limit at 60th percentile) was defeated by one vote.

Patient Ownership of Medical Records: Referred for Interim Study — HF 1978 (Jude)/SF 2094 (Davies)

Responding to constituent complaints regarding lack of access to their medical records, the proposal grants the ownership of a medical record to the person who is the subject of the record. While current law (M.S. 144.335) gives a person a right of access to his medical record (a copy, summary or pertinent portion), several

legislators on the House Judiciary Committee reported that they have received "medical record" complaints from constituents. As one lawmaker explained, "providers aren't reading the law".

Representatives of the MMA emphasized that granting patient ownership of medical records would totally jeopardize a physician facing a professional liability action. Further, the measure would impede patient care and research. The MMA also pointed out that a new form for "Patient-Authorization for Release of Information" was recently approved by the MMA (earlier versions adopted by the State Bar Association and Hospital Association). This form will hopefully allay some of the current confusion regarding access and lead to greater conformity with the medical record law. Responding to the MMA's request for a chance to get widespread membership compliance of the law, lawmakers referred the bill for interim study on a divided, voice vote. Further information on this issue will be forthcoming to the membership.

Medical Records: Destruction By Hospitals: Laid Over — HF 1077 (Brandl)/SF 975 (Berglin)

Sponsored by the Minnesota Medical Records Association (MMRA), the proposal allows a hospital to destroy individual medical records 10 years following the last care, treatment or diagnostic service rendered to the patient. A minor's record could be destroyed six years after they reach 18, or 10 years after the last care, whichever is later. Representatives of the MMRA told legislators that a majority of states have similar legislation, and that a law is needed to decongest storage space and thereby reduce health care costs.

The MMA opposed the measure, arguing that in many cases, it is in the patients best interest to have such information available, particularly in epidemiological and genetic matters. As to storage costs, the MMA advocated expanded use of microfilm. Representatives of the Minnesota Trial Lawyers Association and other groups opposed the bill. Uneasy about the bill's ramifications, lawmakers laid the proposal over and urged the various parties to discuss the issue prior to next session.

University Hospitals Bonding Reduction: Passes House, but not heard in Senate — HF 1757 (Weaver)/SF 1952 (Tennessee)

Continuing his fight to reduce the size and cost of the proposed new University Hospitals construction, Representative John Weaver (IR-Anoka) garnered enough support in the House to pass a bill to reduce the bonding authority from \$190 million to \$154 million. The bill failed to receive a hearing in the Senate.

Chiropractors Go To Legislature — Not Medical School — To Practice Medicine — The Chiropractic "Includes Most Anything" Act: No Hearing Held HF 1662 (McCarron, Drew, Byrne, Clawson, Ogren)/SF 1664 (Johnson, Chmielewski, Pehler, Renneke, Wegener)

Sponsored by the Minnesota Chiropractic Association, the proposal claims to "clarify the scope and extent of chiropractic practice". Stating that the public interest is served "by the utilization of doctors of chiropractic as primary health care providers", the bill provides as follows:

- Deletes these current practice prohibitions: doing "non-invasive" procedures or independent therapies; utilizing FCC approved heat and sound devices, and forbidding the use of such devices above a patient's neck; and limiting x-ray procedures to "bones of the skeleton".
- Allows any "general method of examination of diagnoses and analysis as taught from time to time in any college of chiropractic" that is accredited.
- Permits only chiropractors (not physicians) to "adjust or manipulate abnormal articulations of the human body".
- States that chiropractic procedures "may not include prescribing drugs, surgery, or radiation therapy".
- Allows the Board of Chiropractic Examiners to issue rules governing chiropractic practice "and defining any terms, whether or not used" in the practice act.

The MMA strongly opposes the bill. The MMA believes the present chiropractic act is already more than sufficiently broad enough to permit well-intentioned chiropractors to provide care to patients.

Minnesota Supreme Court Will Soon Rule on Chiropractic Blood Withdrawal/Diagnosis Issue

The Minnesota Supreme Court is expected to issue a decision soon on whether a chiropractor may withdraw and analyze blood. A decision favorable to chiropractors would clearly open legislative opportunities for further "clarification" of their practice act (as proposed above). An adverse judicial opinion for chiropractors would undoubtedly catalyze unprecedented political action by chiropractors in fundraising and campaign

involvement to enhance legislative acceptance of their concerns.

Mandatory Hospital Staff Privileges: No bill

Legislation mandating hospital staff privileges was discussed informally by some legislators, but a bill wasn't introduced this year. In a letter to the MMA during the session, a chiropractic representative wrote:

"The chiropractor could fit into most any department in the hospital, such as obstetrics. After the baby was born and cleaned up, a spinal adjustment could be rendered. A spinal examination could be made and it is amazing the amount of problems that could be prevented in the development of the baby by early spinal care."

Mandatory Chiropractic Services in HMOs: No Hearing — HF 622 (McCarron)/SF 792 (Johnson)

Responding to strong objections raised by HMOs and the medical community, legislators were reluctant to consider a proposal mandating chiropractic and optometric services in HMOs. Currently, an HMO may provide these services if deemed cost-effective. Chiropractors lobbied that 1) they're being discriminated against, 2) chiropractic is more cost-effective than medicine, 3) patients want chiropractic care and 4) physicians are conspiring against chiropractors. The MMA emphasized that 1) HMOs are not designed to model insurance (where chiropractic is covered), 2) chiropractic or any other service may be offered by the HMO if deemed cost-effective and/or it enhances marketing, 3) patients voluntarily join HMOs for services disclosed to them at enrollment and 4) physicians have a First Amendment right to speak in the public interest on health matters.

Mandatory Optometric Services in HMOs Not Heard — HF 1326 (L. Carlson)/SF 1355 (Vega)

Introduced primarily to gain leverage for optometrists in negotiations with HMOs, the bill provides as follows:

- HMOs which offer vision care services through providers who are not HMO employees and who are paid on a fee basis shall not prevent optometrists from providing such services.
- Requires that HMO designation of providers of vision care services shall be on a reasonable and non-discriminatory basis. Optometrists who provide services comparable to those provided by a physician are to be paid on the same basis.

The proposal was primarily aimed at open panel and independent practice HMOs. While claiming to prevent discrimination against optometrists, the measure actually eliminates the free choice of preferred provider by the HMO. The bill was not heard at the request of the House author.

Occupational Credentialing: Proposal to Reinstate Suspended, But Revised Program Stalled in Senate Committee — HF 2074 (Welch)/SF 2148 (Solon)

Responding to the proliferation of groups seeking licensure at the Legislature, lawmakers passed the Allied Health Manpower Credentialing Act in 1973. Implemented by the Health Department, the Act provides a mechanism for decisions to be made on credentialing of new or existing uncredentialed occupations. An array of groups — ranging from acupuncturists and ophthalmic medical assistants to social workers — has sought credentialing over the years, and the Legislature has generally endorsed the process.

Due to budgeting cutbacks, the Health Department suspended most activity in health manpower credentialing last summer. In an attempt to revive the program, the Department sponsored a proposal which modifies the credentialing process, changes membership of the council that reviews applicants and provides program revenue by requiring a license surcharge on health care providers. The measure passed a House policy committee, but was stalled in the Senate when controversy embroiled over the license surcharge and council make-up. Thus, the program is currently in limbo, however, the Health Department intends to complete its issuance of rules governing physicians assistants for a public hearing this fall.

Acupuncture Practice by Lay Persons: No Hearing Held — HF 1659 (K. Clark)/SF 1806 (Berglin)

The measure requires that persons intending to practice acupuncture — including physicians — are required to register with the Commissioner of Health and meet certain requirements. Sponsored by lay acupuncturists who were stymied in their attempt to obtain registration from the Health Department, the bill wasn't heard as legislators focused on the reinstatement of a revised occupational credentialing program (see above section). The proposal is certain to re-surface next session.

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

June, 1982

2&3 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

2, 3 & 7 Basic Life Support Instructor Course; Methodist Hospital, Mpls.; Methodist Hospital; CONTACT Mary Ann Kempcke, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Minneapolis, MN 55440, 612/932-5167.

2-4 Coronary Heart Disease Workshop; U of M Medical School; Spring Hill Center, Wayzata; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

3-5 Strategies and Controversies in Primary Care Medicine; St. Paul-Ramsey Medical Center and U of M Medical School; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

9-11 Musculoskeletal Tumors; U of M Medical School; Sheraton-Ritz Hotel, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

11-12 Clinical Hypnosis; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

12 Eye Surgery; Lakes Area Health Services; Radisson Arrowwood, Alexandria; CONTACT Joseph Burdeau, 111 17th Ave. E., Alexandria, MN 56308, 612/762-0609.

14-16 Advances in Vascular Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Psychiatry; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

21-22 Basic Life Support Course; Methodist Hospital, Mpls.; Methodist Hospital; CONTACT Janell Haugen, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5189.

21 or 22 Basic Life Support Recertification Course; Methodist Hospital, Mpls.; Methodist Hospital; CONTACT Janell Haugen, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5189.

28-29 Advanced Cardiac Life Support; North Memorial Medical Center; NMMC; CONTACT William Nelson, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

29-30 Disabled Adolescent; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

July, 1982

9-10 Malnutrition: The Clinician's Role (Women in Medicine Conference); U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21 Orthopedics; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

August, 1982

17 Ob/Gyn; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

25 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

September, 1982

1-3 Annual Ob-Gyn Seminar; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-11 Controversies in Medicine; St. Louis Park Medical Center; SLPAC; CONTACT Elaine Anderson, SLPAC, 5000 West 39th St., Mpls., MN 55416, 612/927-3350.

13-17 Skeletal Radiology (Annual Radiology course); U of M Medical School; West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

15-17 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health and Safety; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

17 & 18 Current Clinical Cardiology; United Hospitals; Radisson Plaza, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith, St. Paul, MN 55102, 612/298-8558.

23-25 Trauma Seminar; U of M Medical School; Hennepin County Medical Center; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

24 Annual Meeting; Northwestern Pediatric Society; Chanhassen Dinner Theatre; CONTACT Stephen Boros, M.D., 612/298-8864.

29-30 Cardiovascular Disease — 1982; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-October 2 Comprehensive Review of Infectious Diseases; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

October, 1982

6-8 Internal Medicine Review; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7-8 Adolescent Medicine and Health Care; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9 Current Trends in Ophthalmology — 6th Annual; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700, ext. 1117.

14-15 Cancer Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

15 Update on Poisoning; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101 612/221-3980.

18 & 20 Basic Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Emergency Medicine; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

20-22 Clinical Microbiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

20-23 Principles of Colon and Rectal Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 Emergency Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; Rodeway Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

24 ENT for Primary Care Physicians; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

25-27 Clinical Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-30 Clinical Laboratory Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

November, 1982

4-5 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center, Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

December, 1982

1-2 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

7 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

9-11 Coronary Heart Disease: A Comprehensive Review of Principles and Practice; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13 & 15 Basic Cardiac Life Support Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

14 Oncology; Central Mesabi Medical Center, Hibbing; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

SEVEN COUNTY FAMILY practice group seeks associate to replace relocating member. Excellent local hospital. Proximity to Twin Cities. Salary with partnership after one year. Call J. R. Michell, M.D. or Gloria Vierling, Business Manager, Sundance Medical Clinic, Shakopee, MN 612-445-6440.

GERIATRIC INTERNIST The Department of Medicine and the Geriatric Research, Education and Clinical Center (GRECC) at the Minneapolis VA Medical Center are seeking a staff internist for the Intermediary Care and GRECC Diagnostic and Demonstration inpatient units. Clinical responsibilities will be divided between the two units. Applicants must have specific training in geriatric medicine and be prepared to conduct clinical and/or laboratory research in this area, as well as patient care. Full-time academic appointment in the Department of Medicine, University of Minnesota. Please send curriculum vitae to Gabe J. Maletta, Ph.D., M.D., Program Director, GRECC, VA Medical Center, Minneapolis, MN 55417, or call (612) 725-6767, ext. 6313. This position is immediately available.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

(continued on page 386)

Classified Advertisements

(continued from page 385)

WANTED: Internist to join 7 family practice physicians and 2 general surgeons. Young physician group, average age 36. 2-year-old clinic building. Serving a trade area of approximately 25,000. Located 90 miles east of Fargo in the heart of Minnesota's vacation area. Next to a 50-bed hospital with a 5-bed CCU-ICU. Excellent consolidated school system. Most religious denominations represented in the area. Contact William Pauley, Park Rapids-Walker Clinics, Ltd., Box 391, Park Rapids, MN 56470 or telephone 218-732-3325.

WANTED: F.P./G.P. for northern Minnesota community to work with another physician. Great opportunity with a complete package to offer. Excellent area for outdoors activity and raising a family. Call collect 281-253-2131.

FAMILY PHYSICIAN AND General Surgeon wanted to join 10 member primary care group. Seven Family Physicians, 2 Internists and 1 General Surgeon. Remodeled and expanded clinic facility 6 blocks from modern, well equipped 99 bed hospital. Rural Community 45 minutes south of the Metro area on 35W. Salary guarantee first year, liberal benefits. Contact: Darral Mischke, Clinic Administrator, Faribault Clinic, Ltd. 924 N.E. 1st St. Faribault, Minn. 55021.

FIFTY PHYSICIAN MULTI-SPECIALTY clinic in west central Wisconsin wants neonatologist, neurosurgeon, orthopedic surgeon, and otolaryngologist. Excellent cultural, educational, and recreational facilities. 90 miles from Minneapolis. Please contact James R. Jepson, Administrator, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5266.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

WANTED: Family practitioner, internist, OB-GYN to join multi-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

WANTED — Family practitioner to associate with another family physician. Opportunity to develop professionally in an area of physician need. No investment required, starting income guaranteed. Clinic facilities attached to accredited hospital. Located in stable agricultural area. Consulting services readily available through S. W. Healthcare Cooperative. Contact J. F. Kegel, M.D., 507-629-3012, or Omer J. Eischens, Adm., 507-629-3200.

MINNESOTA, St. Cloud: Opening for full-time emergency physician to join growing private group. Consider only residency trained or ABEM Credential Eligible physician. Fee for service corporation, excellent salary and benefits. 500 bed hospital serving large area in Central Minnesota. Paramedic service established. ER facility being enlarged to handle regional resource and trauma status. Rapidly growing area — three major colleges, excellent schools, good hunting/fishing. One hour from Minneapolis-St. Paul, yet all the benefits of smaller town living. Contact D. L. Frederickson, M.D., Emergency Medical Director, St. Cloud Hospital, St. Cloud, MN 56301 (612) 255-5656.

ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

CLINIC PRACTICE FOR SALE — St. Paul Industrial and Gen. Surgery. Many years estab practice — former Emerson Clinic — Will introduce buyer to Ins firms, Indust. plants, Bargeline operators plus many private pts including 3rd generation families. Complete office equip, supplies, files, patient records, extensive P.T. equip, x-ray, lab & pharm. Newly decorated & carpeted waiting room, 6 rooms including emerg. room. Modest down payment — long term financing 10% int. E. C. Emerson, M.D. 806 E. 7th St., St. Paul, Mn. 55106 — 612-776-2744.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

Classified Advertisements

MINNESOTA, DULUTH: Emergency Physician wanted to fill vacancy in St. Luke's Hospital, a 400-bed hospital, EMS Regional Trauma Center, with 23,000 annual ED volume. Fee for service corporation with negotiable 1st year salary and then full partnership. Prefer physician ABEM certified or eligible with interest in teaching in local ATLS, ACLS and FP residency. Send CV to Physicians Emergency Service, Ltd. 915 E. 1st St. Duluth, MN. 55805. (218) 726-5212.

FAMILY PRACTICE PHYSICIAN/ or PRIMARY CARE ORIENTED INTERNIST — To join two family practice physicians and a Board certified Surgeon in a group practice. Located in a Community of 2,500 in Southwest Minnesota. This Medical Clinic is supported by a modern 30 bed acute care Hospital and 138 bed skilled long term care facility. Guaranteed first year income, will pay travel expenses for interview. Interested Physicians send curriculum vitae to William Wilson, Administrator, Springfield Community Hospital, P.O. Box 146, Springfield, Minnesota 56087 or call collect (507) 723-4215 for more information.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D. or Albert M. Sheldon, III, M.D., Winsted Clinic P.A., Winsted, MN 55395 1-612-485-4151.

LOCUM TENEN SERVICES — If you need temporary coverage or wish work providing coverage in primary care, contact: INTERHEALTH, 5695 Merry Lane, Excelsior, MN 55331. 612/474-4372

2nd yr. Medical student desires financial assistance in return for future service. Please Reply, Minnesota Medicine (728), 2221 University Avenue SE, Mpls., MN 55414.

TAX AND INVESTMENT PLANNING. Busy professionals seldom have the time or training to plan their financial future with the sophistication our economic environment now requires. Chiattello and Powell specializes in comprehensive and professionally-responsible planning for practitioners, with a long-term personal relationship between client and planner. Call or write Herbert Schlossberg, Ph.D., Chiattello and Powell, Inc., 2215 Pillsbury Avenue, Minneapolis, Minnesota 55404. (612) 871-9429.

FAMILY PRACTICE OPPORTUNITY — New full-service clinic facility opening July in Eagle Bend, Minnesota. Attractive income guarantee and benefit package. Join existing two-man corporation after first year. JCAH 32 bed full service hospital, with CAP Lab, Radiology, Surgery, ER, operated by progressive investor-owned multi-hospital corporation. Also excellent school facilities. Call or write Gary Greenquist, St. John's Hospital, Browerville, Minnesota (612) 594-2204 or Dr. Russell Brown, Todd County Medical Center, (612) 594-2231.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

(Continued on page 388)

Classified Advertisements

(continued from page 327)

FAMILY PRACTITIONER wanted to join (4) Family Physician and (2) Internist group in western Minneapolis suburb, near Lake Minnetonka. Prefer board certified or eligible applicants. Send references and curriculum vitae to Diane Theis, Clinic Manager, Mound Medical Clinic, Ltd., 2208 Commerce Blvd., Mound, Minn. 55364.

FAMILY PRACTITIONERS AND INTERNISTS — 40 bed hospital on the shores of Lake Superior in the Upper Peninsula of Michigan seeks additional staff in Family Practice and Internal Medicine. Year round recreational area with opportunity for challenging medical practice. Office building, staff and equipment negotiable. Contact William Hermann, Executive Vice President, Munising Memorial Hospital, Route 1, Box 501, Munising, Michigan 49862.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

OFFICE SPACE, in Medical Arts Bldg. Established physician has several extra rooms — will rent 1, 2 or 3 with shared reception room. Receptionist services optional. J.E. Eichenlaub, M.D., 237 Medical Arts Building, Minneapolis 55402

"OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN, one country Family Practice physician for the main clinic in Albert Lea; both of these positions are open now and should be filled by late 1982. An additional Family Practice opening will be available in mid 1983 or earlier for anyone who might be available. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

M.D. OFFICE LAB equipment for sale. Biodynamics Flame photometer, Spectrophotometer (unimeter 300), Clay Adams centrifuge, Vita-lor Spirometer, other. If interested call Dr. Vieta collect after 6 P.M. (701) 393-4310.

WANTED: Board Certified/Eligible physicians under age 58 in OBG, General/Orthopedic Surgery, ENT, Urology, Ophthalmology, Dermatology, Oncology, Rheumatology, and Hematology to relocate with U.S. Air Force group-type practice. Full range, high-quality benefits. Replies to Gene Gunderson, 2829 University Ave. SE, Suite 444, Minneapolis, MN 55414 (612) 331-8216.

INTERNAL MEDICINE: Ten member primary care group is seeking 2 Internists to join us now. Excellent social, educational, and recreational area, with modern expanding medical facilities. Salary guarantee first year. Contact: David Hellstern, Clinic Administrator, Alexandria Clinic, P.A., Alexandria, MN 56308. (612) 763-5123.

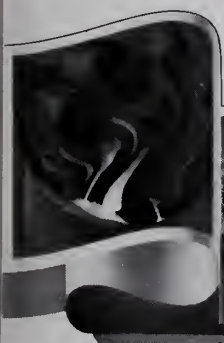
BactrimTM

(trimethoprim and sulfamethoxazole)

succeeds

Bactrim is useful for the following infections when due to susceptible strains of indicated organisms (see indications section in summary of product information):

Expanding its usefulness in antimicrobial therapy



in recurrent UTI...
a continuing record of high clinical effectiveness against common uropathogens

in acute otitis media in children...
effective against both major otic pathogens...with b.i.d. convenience

in acute exacerbations of chronic bronchitis in adults...
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Before prescribing, please consult complete product information, a summary of which follows:

Indications and Use: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. Limited clinical information presently available on effectiveness of treatment of otitis media with Bactrim when infection is due to ampicillin-resistant *Haemophilus influenzae*. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia. To date, this drug has been tested only in patients 9 months to 16 years of age who were immunosuppressed by cancer therapy.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. Blood dyscrasias: Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. Allergic reactions: Erythema

multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. Gastrointestinal reactions: Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea and pancreatitis. CNS reactions: Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness.

Miscellaneous reactions: Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

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Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).



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1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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160 mg trimethoprim and 800 mg sulfamethoxazole

DOUBLE STRENGTH TABLETS

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* due to susceptible strains of indicated organisms

Please see previous page for summary of product information

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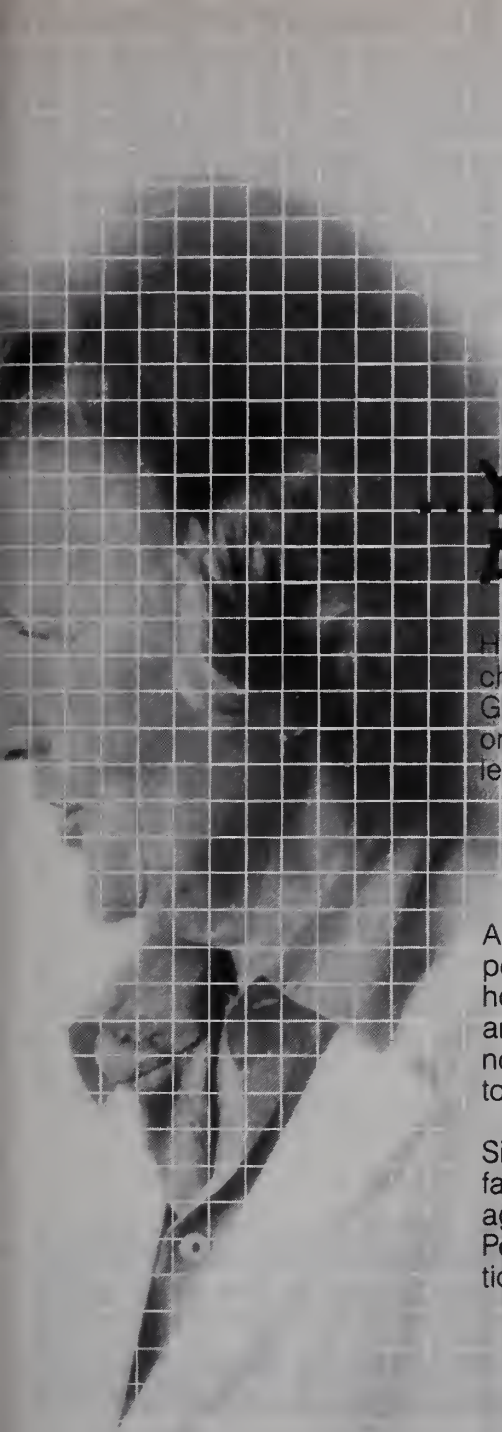
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Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication. Abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

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Dosage: Individualize for maximum beneficial effect. **Adults:** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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President's Letter



Nuclear War and Physicians

"Hitherto a man had to live with the idea of death as an individual; from now onward mankind will have to live with the idea of its death as a species."

Arthur Koestler
Hungarian Writer (1905)

The 129th Annual Meeting of the House of Delegates adjourned on May 28 of this year. Before this House of Delegates were three resolutions concerned with the problems facing physicians and society in the event of nuclear holocaust.

The reference committee that heard these resolutions produced the following resolves which will be presented in an abridged fashion: It urged that the MMA support a worldwide non-proliferation of nuclear weapons and a reduction of nuclear arms as rapidly as possible. It asked the MMA to initiate a program to educate physicians and the public about the catastrophic medical consequences of nuclear war, and it encouraged the AMA to initiate a national program to educate physicians and the public.

In December of 1981, the interim meeting of the AMA House of Delegates was held. Rather than accept strongly worded resolutions, the delegates accepted a report of the AMA Board of Trustees which stated that this Board believed it is incumbent upon the AMA to inform the President and the Congress of the United States of the medical consequences of nuclear war and that no medical response is possible.

However, the problem remains with us. At this writing, there are already two new resolutions on nuclear war that will be presented to the AMA House of Delegates at its annual meeting in June. At present, a unique phenomenon is the grass roots support by people of all political persuasions to seek non-proliferation of nuclear arms and finally disarmament. This has resulted in peaceful demonstrations throughout the northern hemisphere (except Russia), the

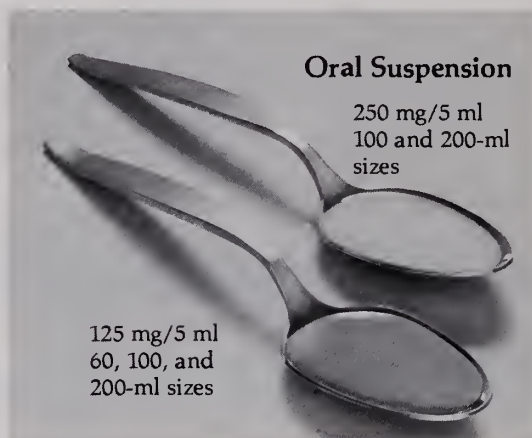
publication of articles in the *New Yorker*, the *Atlantic*, and *Time* magazines, and attempts to have the nuclear "freeze" issue placed on the ballot next November in more than 20 states. If the clergy of different denominations can voice their concern on moral grounds, certainly the medical profession can voice concern on medical grounds.

It is beyond this letter to detail the immediate and late horrors should the "unthinkable" occur. We, as physicians, don't have a blueprint for obtaining immediate nuclear disarmament, but we do have an organization that works to that end — "Physicians for Social Responsibility." PSR has grown from a few hundred members, a few years ago, to over 8,000 members at present. They hold seminars at the nation's leading medical schools, attempting to reach out to doctors not already convinced of the horrors that could befall us in this "the last epidemic."

I would make one more comment. One of the resolves that your MMA delegates approved was to support the Twin Cities Chapter of Physicians for Social Responsibility in its upcoming symposium. This symposium will be held at the Twin Cities Campus of the University of Minnesota on November 20, 1982. I hope many physicians and health related people will attend.

Severin H. Koop, M.D.
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Editor's Notebook

The Cliché Expert Speaks Jargon

Q: Doctor Malaprop, you are a cliché expert. I understand you also speak jargon fluently. Is that correct?

A: That is correct. Let me demonstrate: "Hopefully my expertise has a meaningful relevance to the exacerbating incompatibilities encountered in the dysfunctional uses of medical language. In other words, the way you doctors bend the language out of shape boggles my mind."

Q: That's flawless jargon. Spoken without a trace of an accent, I might add. Tell me do doctors speak the best jargon?

A: No, politicians do. In Washington, older people are "senior citizens", teenagers are "unemancipated minors", results are "measured end products", giving advice is "technology transfer assistance", coordination is "affecting linkages", and taxes are "revenue enhancements".

Q: What is the Reagan Administration doing to promote jargon?

A: Nothing. In fact, the Administration is programming word processors to alter quality of input. A *Wall Street Journal* reporter noted:

"Secretary of Commerce, Malcolm Baldrige, has ordered his department's word processors fixed so they reject jargon. Traumatized Commerce bureaucrats can't impact, interface, finalize, maximize, prioritize, or effectuate. Nor are they permitted to input new thrusts into ongoing programs to optimize the parameters of the department's image."¹

Q: How's the Administration's battle against jargon going?

A: Down the tube. Secretary of State Haig is defeating it single-handedly. During nationally televised hearings, he kept converting nouns into new verbs (I'll caveat that." "Not in the way you contexted it, Senator.'). His verbal thrusts into unexplored territory have become known as Haigravations.

Q: You mean Haig is guilty of verbifying?

A: I wish I had said that. You heard, didn't you, that when the Haig family had breakfast with Israel's leader, "Begin and Haigs" were served. But you're not into puns, are you?

Q: No, but go on anyway.

A: Anyway, The *Manchester Guardian* savaged Haig's verbifying capacities with this parody:

"Haig, in congressional hearings before his confirmatory, paradoxed his

EDITOR'S NOTEBOOK

auditioners by abnormalling his responds so that verbs were nowned, nouns verbed and adjectives adverbized. He techniqued a new way to vocabulary his thoughts so as to informationally uncertain anybody listening to what he actually implicationed. . ."

"If that is how General Haig wants to nervous breakdown the Russian leadership, he may be shrewding his way to the biggest diplomatic invent since Clausewitz. Unless, that is, he schizophrenes his allies first."²

Q: But if our own Secretary of State invents his own language, surely physicians can do the same.

A: You can. You have to boogie, to go with the flow. Clearly, you use what is operational, appropriate, and in vogue.

Q: Could you be more specific?

A: You live and learn, live and let live.

Q: Come again?

A: You talk with style. You dress up your verbs. You always *seriously* consider, *utterly* reject, are *absolutely* right, *thoroughly* examine, make *perfectly* clear, and be *broadly* based. Never let a verb go naked.

Q: But it isn't easy to remember all those adverb-verb combinations, is it?

A: Easy! Nobody ever said being a cliché expert was easy. Listen to Frank Sullivan, the original cliché expert, talk about his road to the top:

"It was an uphill climb, no bed of roses. Before I made my mark as a cliché expert, I had my ups and downs. Sometimes, when everything was at sixes and sevens, it almost seemed my dearest ambitions were going to wrack and ruin. I had moments when I was almost tempted to believe everything was a snare and delusion. Even my own flesh and blood discouraged me, in spite of the fact I was their pride and joy. For a considerable period of time it was nip and tuck whether I would sink or swim."³

Q: That tough, eh?

A: Yes, it led me to drink. At various times, I was plastered, skished, fried, pickled, stewed, oiled, canned, tanked, potted, pie-eyed, cock-eyed, goggle-eyed, mock-eyed, blind, stupified, full, stiff, tipsy, conked, blotto, loaded, paralyzed, spifflicated, half-shot, woozy, zonked, jingled, crocked, soused, sloughed, numbed, ossified, petrified, loaded to the gills, boiled as an owl, high as a kite, and tight as a mink, tick, or drum.

Q: Did the drinking refine your clichés or merely improof your retorts?

A: There you go again. I give the smart answers here.

Q: How did you overcome your drinking problem?

A: I learned to cope, to get high on myself, to care about myself as a person, and to respect myself as a super individual.

Besides I distilled the true essence of alcohol. It is Elixir and Opiate; Tonic and Painkiller; Running Riddle and Fluid Answer; Destroyer and Preserver; Universal Solvent and Mortal Stain; Setter-On of the Dream and Taker-Away of the Performance; Joie de Vivre and Lachrymose Rerum; and the Symbol of the Ferment in this Valley of Fog, Mist, and Tears.

EDITOR'S NOTEBOOK

Q: From that spirited answer, I see you became an expert the hard way.

A: Not necessarily. To give it to you straight out, straight from the bottle, and straight from the shoulder, it doesn't make a lot of difference what you say, as long as you sound authoritative.

To make a long story short, I found out how to get my buzzes out of buzz words.

All you need are 30 buzz words. Arrange them in three columns, think of any three digit number, and throw the resulting phrase into any journal article, medical staff bull session, think tank gathering, planning committee, board meeting, or ordinary conversation with your arch enemy.

Here are my current buzz words.

<u>Column One</u>	<u>Column Two</u>	<u>Column Three</u>
0 conceptive	0 interface	0 optimization
1 substantive	1 processed	1 rectifier
2 redundant	2 feasibility	2 medians
3 socioeconomic	3 generative	3 entrophy
4 partial	4 exposure	4 syndromes
5 non-directional	5 cogent	5 multipliers
6 oralized	6 post-test	6 matrix
7 differential	7 empirical	7 modules
8 cross-societal	8 binary	8 maximums
9 non-attitudinal	9 credibility	9 nominals

For example, if someone challenges your scientific logic, think of a number, say 780, and cooly inform him you used the scientific technique of differential binary optimization. That will hold the bastard.

Q: This all sounds vaguely familiar. Should it?

A: It should. You created a similar list for doctors ten years back in an article entitled "Healthcaremanship."⁴

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>
total	management	care
regional	supportative	coordinator
universal	health	analyses
primary	integrated	centers
comprehensive	ambulatory	services
national	resource	priorities
quality	pilot	planning
interdependent	involvement	needs
preventive	paramedical	studies
systematized	effectiveness	utilization
feasible	digital	implementations
delivery	scientific	objectives
unmet	outreach	systems
community	allied	maintenance
centralized	medical	parameters
longterm	multiphasic	feedback
		crises

EDITOR'S NOTEBOOK

Q: I did that? I thought I was listless ten years ago.

A: Where do you think I get my ideas? Do you *honestly* believe I could *program*, *implement*, *structure*, and *monitor* my fluent non-meaning without a role model. Thanks to you, I've come a long way, baby, the chickens have gone home to roost, and the monkey is off your back.

Q: Do you have any parting advice to the doctors?

A: Just keep doing what you're doing.

1. Use medicalesse instead of plain English. This list will serve as a starter for the uninitiated. Use the first word instead of the English translation.

anacusis for deafness
antitussive for cough medicine
bromidrosis for foul-smelling sweat
cacodontia for bad teeth
coryza for bad cold
decubation for lying down
defurfuration for scaling skin
hallux for big toe
nictation for winking, blinking
pyrosis for heart burn
rhus dermatitis for poison ivy
singultus for hiccups
tinea cruris for jock itch

2. Change nouns into new verbs or make long words shorter.

"bronked" for underwent bronchoscopy
"cathed" for catheterization
"oids" for corticosteroids

3. And, by all means, keep abbreviating.

PERRLA	"pupils equal, round, reactive to light"
QR	"quiet room", i.e. padded cell in psychiatric units
OR	"operating room"
CC	"chief complaint"
ROS	"review of systems"
SOB	"short of breath"
SOOB	"sit out of bed"
COLD	"chronic obstructive lung disease"
LOL in NAD	"little old lady in no apparent distress"
ROR	"relationship on rocks"
MFC	"measure for coffin"
ECU	"eternal care unit", i.e. morgue
DNR	"do not resuscitate"
TURP	"transurethral resection of prostate"
FLK	"funny looking kid"
LMDs	"local medical doctors"
RDs	"real doctors"
BTH&H	"boogying towards health and happiness"
WNL	"within normal limits"

EDITOR'S NOTEBOOK

Q: Is that all?

A: It's enough. After all, I've made myself perfectly clear, haven't I?

Richard L. Reece MD

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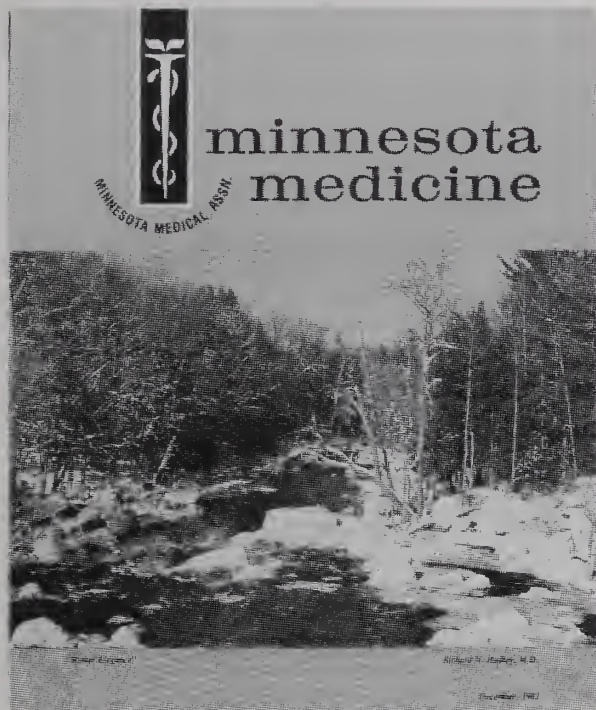
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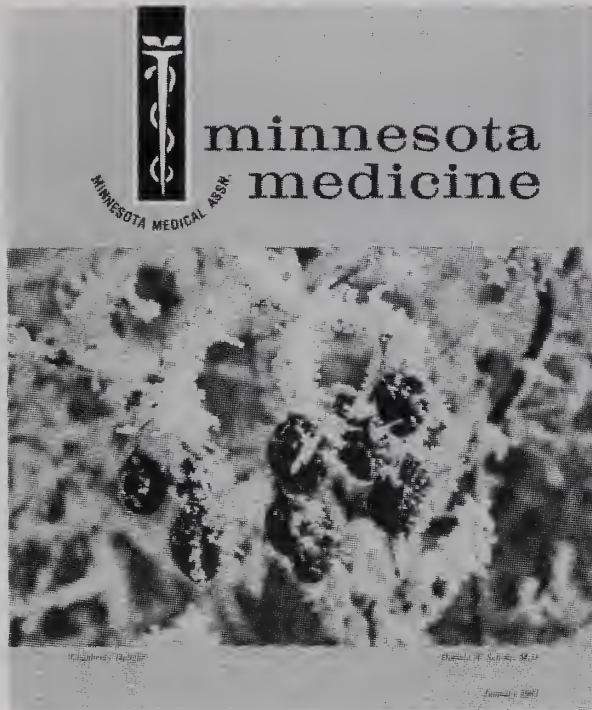
MINNESOTA MEDICINE's Best of the Year

Each Spring the Board of Editors announces its choices for the best scientific/original article and best cover for the previous year. The winners for 1982 are:

Outstanding Covers Published in 1981



"Winter Elegance" — December cover of MINNESOTA MEDICINE by Richard N. Hadley, M.D., orthopedist practicing at the Nicollet Clinic in Minneapolis.



"Cranberry Delight" — January Cover of MINNESOTA MEDICINE by Donald A. Scholz, M.D., internist at the Mayo Clinic, Rochester.

Predictors of Coronary Artery Disease from Exercise Stress Testing

MARK F. GOBEL, B.A.* RICHARD R. NELSON, M.D.,[†] LEONARD A. NORDSTROM, M.D.,[‡] and FREDARICK L. GOBEL, M.D.*

Findings at coronary arteriography were correlated with results from Exercise Stress Tests in a population of symptomatic men with a high prevalence of ischemic heart disease. Exercise testing was performed on a motor-driven treadmill to a symptom tolerated maximum effort. From 221 consecutive patients who received coronary arteriography, 105 were selected who had normal or nearly normal resting ECGs and these patients served as the study population. Eighty-four percent of patients had lesions obstructing greater than 50% of the lumen diameter in at least one coronary artery and 67% of patients had similarly obstructive lesions in either two or three coronary arteries. Both the sensitivity and the specificity of the exercise test was 88%. All patients with a false negative response to exercise failed to reach 70% of the age adjusted predicted maximal heart rate. Although the correlation between findings at coronary arteriography and an exercise test score was poor ($r = 0.26$), the relationship between those patients with a very abnormal exercise test score and findings at coronary arteriography was much better. Down sloping ST segments, reduced exercise tolerance, persistence of ST changes for greater than two minutes following exercise were the three most important factors predictive of two or three vessel coronary artery disease.

EXERCISE stress testing has proved to be a valuable tool in predicting the presence of ischemic heart disease and in assessing functional tolerance but its value in defining coronary artery anatomy has not been fully evaluated.¹⁻³ There is need for an easily applied, noninvasive test that would predict the extent of coronary artery pathology.

The sensitivity and specificity of exercise stress testing in detecting the presence of ischemic heart disease depends upon a number of factors including the sex,⁴⁻⁶ incidence of disease in the population studied,^{6,7} type of test performed,^{8,9} criteria for the endpoint of the exercise test,³ and the amount of stress achieved.^{10,11} Several studies have indicated that the depression and slope of the ST segment during and following exercise affects the sensitivity and specificity of the exercise stress test.¹²⁻¹⁴ Few studies have incorporated all of the above criteria in evaluating the usefulness of the exercise stress test.⁶

The purpose of the present study is to correlate the information obtained during stress testing to a symptom tolerated maximal effort (STME), with findings at coronary arteriography in a population of symptomatic men with a high prevalence of ischemic heart disease.

Patient Material

From a group of 1,081 patients who performed an exercise stress test to STME between 1971 and 1976, 221 received coronary arteriography and serve as the study population. Patients selected for coronary arteriography were individuals in whom the diagnosis of ischemic heart disease was not clearly established or patients with angina pectoris who did not obtain sufficient relief with medical therapy and were being considered for coronary artery surgery. To create a completely male population, two female patients were excluded. Patients were further excluded from the study for the following electrocardiographic abnormalities: bundle branch block at rest or during exercise, eight patients; left ventricular hypertrophy, two patients; moderate or severe ST-T wave changes at rest, 31 patients; old myocardial infarction, 41

Outstanding Scientific/Original Article Published in 1981

"Predictors of Coronary Artery Disease from Exercise Stress Testing" by Mark F. Gobel, B.A.; Richard R. Nelson, M.D., Leonard A. Nordstrom, M.D. and Fredarick L. Gobel, M.D., cardiovascular sections of Abbott-Northwestern Hospital, University of Minnesota, and St. Louis Park Medical Center, Minneapolis. Published in the March issue of MINNESOTA MEDICINE.

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Address for Reprints: Fredarick L. Gobel, M.D., 2541 Chicago Avenue, South Minneapolis, Minnesota 55405.

Echoes from Our Past

JACK D. KEY, M.A., M.S.*

Lavender follows Fatal Body Odor

C. E. Lavender, M.D. read a paper¹ before the Alabama Medical Society the 3rd of April in 1848, presenting three cases of what he termed anthro-po-toxicologia. For the three cases, all married women, the course of the illness, progress, diagnostic symptoms, and fatal result were outlined. The manifestations were similar "gradual emaciation and waste of vitality, without any apparent fixed disease; the optic illusions, especially the fact of *light appearing scarlet, and white red*; the coincidence of the symptoms under similar circumstances; and the fatal termination."

Anthropological facts were given as follows:

P.K., the husband of the two women whose cases are detailed (and the remarks will equally apply to D. W., the husband of the third,) is a man whose cutaneous secretions, especially under excitement, are known to be exceedingly offensive and disgusting. "Essentially an unclean animal, all the civet of the apothecary, mixed with the perfumes of Araby the blessed, cannot sweeten him." Is it not possible, nay, is it not probable, that the inhalation of these gaseous secretions or the absorption of others, from this living laboratory of malaria, may have produced deleterious impressions on those constantly subjected to their influence, causing a specific and fatal train of morbid associations?

These two women were in the prime of life, in robust health, of good constitution and of active, healthful habits. So soon as they came in contact with this man, they began to exhibit the effects of morbid causes. They both became leucophlegmatic, and continued constantly and steadily to decline. The same optic illusions, dimness of vision and perversion of colors, marked the progress of both cases to a fatal termination.

Reference

1. Lavender CE: Anthro-po-toxicologia. Cases; with Remarks, New Orleans Medical and Surgical Journal 5:33-37, 1848-1849.

On Alopecia and Brass Bands

Henry Alfred Robbins, M.D. in an article, "Hair and Its Anomalies," published in the *Journal of the American Medical Association* (34:1169-1172, May 12, 1900), notes:

Music seems to have an effect on the growth of the hair. Brass instruments have a fatal influence, notably the cornet, the French horn and the trombone. They will apparently depilate a player's scalp in less than five years. The baldness which prevails among members of regimental bands has been given the name of "trumpet baldness." It has been suggested that it is barely possible that the baldness which is said to prevail among the habitués of the front rows at the theater may be due to the proximity of the brass instruments, or may be caught by some contagion from the players themselves. Piano playing, on the contrary, seems to prevent or arrest the loss of hair, as is the case with Paderewski and Emil Sauer, and every noted pianist I ever heard of.

*Librarian, Mayo Clinic, Rochester, Minnesota.

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42 patients in private practice, approximately three times as many patients reported feeling refreshed and alert upon awakening after a night on Dalmane (flurazepam/Roche) compared to placebo nights.² This difference was highly significant ($p < 0.001$). And a retrospective study of 541 hospitalized patients who received Dalmane revealed only a 3.1% incidence of side effects.³

While residual effects from Dalmane therapy are infrequent, patients should be cautioned about drinking alcohol, driving or operating hazardous machinery after ingesting the drug.

Efficacy and safety in a broad range of patient types.

Over 2000 clinical trials involving more than 10,000 patients have shown that Dalmane patients fall asleep sooner, sleep longer and experience fewer nocturnal awakenings.⁴ The safety and efficacy of Dalmane have been demonstrated in medical and surgical hospitalized patients, in patients seen in office practice and in elderly patients.⁵⁻⁸ Since the risk of oversedation, dizziness, con-

sion and/or ataxia increases with larger doses in the elderly, it is recommended that the dosage be limited to 15 mg.

Moreover, the efficacy and safety of Dalmane for the treatment of insomnia have been demonstrated in thousands of patients with a variety of primary medical conditions, including cardiovascular, neuropsychiatric, endocrine-metabolic, gastrointestinal, genitourinary, respiratory and musculoskeletal disorders.¹ Dalmane (flurazepam HCl/Roche) is contraindicated in pregnancy and in patients hypersensitive to the drug.

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References: 1. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 2. Zimmerman AM: *Curr Ther Res* 13:18-22, Jan 1971. 3. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977. 4. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 5. Meyer JA, Kurland KZ: *Milit Med* 138:471-474, Aug 1973. 6. Feffer HL, Gibbons B: *Med Times* 101(8):130-135, Aug 1973. 7. Jacobson A et al: *Psychophysiology* 7:345, Sep 1970. 8. Frost JD Jr, DeLucchi MR: *J Am Geriatr Soc* 27:541-546, Dec 1979. 9. Kales A, Scharf MB, Kales JD: *Science* 201:1039-1041, Sep 1978. 10. Kales A et al: *JAMA* 241:1692-1695, Apr 1979. 11. Monti JM: *Methods Find Exp Clin Pharmacol* 3(5):303-326, 1981.

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Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

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Adults: 30 mg usual dosage; 15 mg may suffice in some patients. **Elderly or debilitated patients:** 15 mg recommended initially until response is determined.

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Treatment of Ring Injuries Utilizing Microvascular Surgery

CHARLES J. MACDONALD, M.D.; CHRIS P. TOUNTAS, M.D. and WILLIAM H. CALL, M.D.

This is a series of five cases of ring avulsion injuries with varied degrees of vascular compromise. Each was treated with microsurgical repair of the injured vasculature with subsequent survival and significant return of function.

RING INJURIES PRODUCE a wide spectrum of wounds, from superficial skin abrasions to total avulsions of the soft tissues and bony parts (Figure 1). Sometimes the tendons and skeletal structures are intact or only minimally damaged. However, these injuries frequently result in digital artery or venous interruption or both while the nerves appear more resistant to avulsion.

On initial examination, digital circulation can be compromised and in some cases may improve without intervention. However, it is difficult to know with certainty which digits will survive. In the face of digital artery injury or significant venous occlusion, temporization may unnecessarily jeopardize survival of the digit. The totally, or partially devascularized distal segment may be rendered viable with microsurgical techniques.¹

We agree that with skin and soft tissue totally av-

St. Paul hand surgeons.

ulsed, amputation or flap coverage, as outlined by others, may be reasonable.²⁻⁶ However, with the present use of microsurgical techniques, consideration can be given to repair of the partially or totally devascularized hand or amputated segment. The utilization of fine instruments and suture with the operating microscope is becoming more common in hand surgery (Figure 2). In many cases the use of microsurgical technique has given gratifying results to patients with severe injury. In some injuries, without the use of special techniques, the digit would have been lost.

The following cases are examples of the use of these techniques with certain severe ring avulsion injuries:



Figure 1

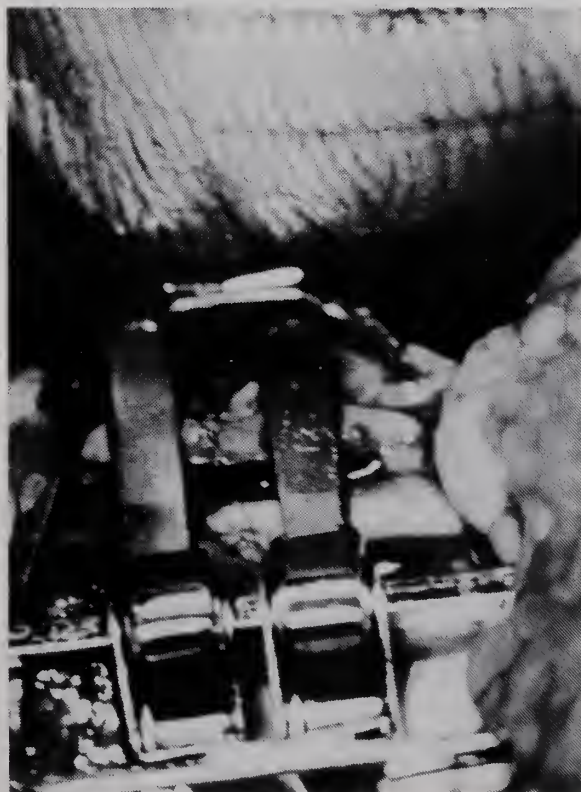


Figure 2

Case Reports

Case 1

A 41-year-old male workman received a severe avulsing injury while cleaning lockers. There was a near circumferential laceration with only a dorsal skin bridge remaining. The volar plate of the proximal interphalangeal joint was partially lacerated. The flexor and extensor tendons and digital nerves were intact. There was complete transection of the radial and ulnar digital arteries and devascularization of the finger (Figure 3).

Under long acting axillary block and tourniquet ischemia microsurgical repair of the radial digital artery was carried out to restore circulation. The volar plate separation on the ulnar side was resected. The skin was loosely approximated. Postoperatively intravenous Heparin, Dextran and aspirin were used. Subsequently, because of a small skin slough dorsally, a split thickness skin graft was applied. Good viability, range of motion and sensation resulted (Figures 4 and 5).

Case 2

While scaling a wall a 29-year-old male caught his ring on a metal plate which caused near circumferential wound of the ring finger with complete disruption of the distal interphalangeal joint and avulsion of the distal phalanx. The flexor tendons were intact but there

was complete transection of the extensor tendons at the distal interphalangeal joint. Although the neurovascular pedicles were intact there was vascular compromise distal to the laceration because of venous obstruction (Figure 6).

Utilizing regional anesthesia the distal phalanx was reduced and held with K wire fixation. The supporting distal interphalangeal joint



Figure 5



Figure 3

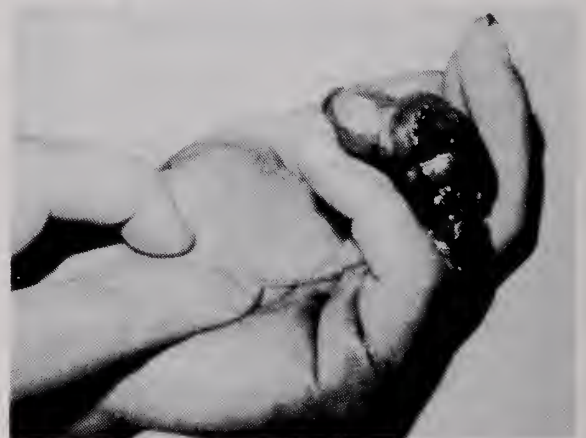


Figure 6



Figure 4

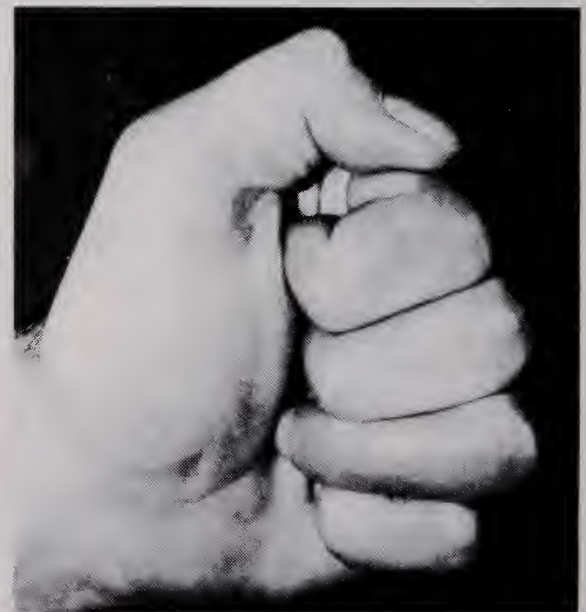


Figure 7

structures were re-approximated.

The extensor tendon was repaired. Venous run off was improved with re-approximation of one dorsal vein. Dextran, aspirin and intra-venous Heparin was used post-operatively. Satisfactory proximal interphalangeal joint motion resulted but the distal interphalangeal joint remains ankylosed at 30 degrees of flexion (Figures 7 and 8).

Case 3

A 32-year-old female impaled her right ring finger against a bumper with a log splitter. Two rings caused a near circumferential laceration with only a narrow dorsal skin bridge. The digital nerves, flexor and extensor tendons, were intact. There was a fracture of the distal phalanx with an overlying nailbed disruption. Segmental occlusion of the radial and ulnar digital arteries caused a significant reduction in distal vascularity (Figure 9).

Satisfactory closed reduction and K wire fixation of the distal phalanx was done under axillary block. Improved circulation was apparent after repair of the ulnar digital artery utilizing microsurgical technique. Aspirin and Dextran were used 10 and 3 days postoperatively, respectively. Range of motion of the digit was 55 degrees and 15 degrees at the proximal interphalangeal joint, distal interphalangeal joint, respectively. There was a resulting nail deformity (Figures 10 and 11).



Figure 8

Case 4

A 17-year-old girl caught her ring on her left long finger on a shelf at work in a fall, resulting in a circumferential avulsion of the skin and subcutaneous tissue of the finger from the proximal digital crease to the distal interphalangeal joint. The extensor tendon was raggedly avulsed over the distal aspect of the middle phalanx. The bone and flexor tendons were preserved. Both digital nerves were intact but neurapraxic. The radial digital artery was avulsed over a long distance and irreparable. The ulnar digital artery was intact. All veins were avulsed. The finger was cool and deeply cyanotic distal to the wound.

The extensor tendon was repaired. Dorsal veins were dissected under the operating microscope and two were microsurgically anastomosed. Immediate relief of cyanosis was noted with venous repair. A small primary split thickness skin graft was required for coverage. The digit survived and has regained excellent function. Two point discrimination eight months after the operation is 5/mm in the distribution of both digital nerves.

Range of motion at the metacarpo-phalangeal joint and proximal interphalangeal joint is full. Distal interphalangeal joint motion is 10 degrees to 35 degrees.



Figure 9



Figure 10



Figure 11

Case 5

A 19-year-old girl caught a ring on her right ring finger on a tractor. The bone, extensor and flexor tendons were intact. Both digital nerves were intact. All veins were avulsed and the distal circulation of the finger was severely compromised.

Two dorsal veins were dissected with the operating microscope but were too short for primary repair. Dorsal vein grafts from adjacent fingers were transferred to the injured finger, and anastomosed. Good venous return was immediately provided. A small split thickness skin graft was applied for coverage. Eight weeks after the operation motion, function and sensation of the finger are equal to its uninjured counterparts.

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In Memoriam

WHEREAS, 55 of our member physicians, whose names are listed below, passed away during the year 1981;
and

WHEREAS, they will be missed as friends and colleagues and their professional contributions will serve as
an inspiration to all of us in the future; therefore be it

RESOLVED, that the House of Delegates, on behalf of the entire membership, express our sincere sympathy
to the families and friends of these deceased members; and be it further

RESOLVED, that this resolution in its entirety be communicated to the full membership of the Association.

January 1, 1981-December 31, 1981

- | | | |
|--|--|---|
| Meyer S. Belzer, Edina
Born 1907 — Died August 27, 1981 | Charles Hymes, Minneapolis
Born 1895 — Died November 7, 1981 | James V. Ross, Jr., Rochester
Born 1929 — Died October 31, 1981 |
| Howard G. Bosland, Sheldon, IA
Born 1906 — Died June 2, 1981 | James W. Kernohan, Rochester
Born 1896 — Died May 5, 1981 | Homer H. Russ, Blue Earth
Born 1901 — Died April 18, 1981 |
| Herbert Boysen, Madelia
Born 1898 — Died January 10, 1981 | Lewis A. Knutson, Spring Grove
Born 1909 — Died March 17, 1981 | William G. Sauer, Rochester
Born 1915 — Died January 3, 1981 |
| Francoise Marie Carney, Rochester
Born 1935 — Died October 21, 1981 | Richard C. Lillehei, Minneapolis
Born 1927 — Died April 1, 1981 | Alan R. Sivertson, Litchfield
Born 1946 — Died October 8, 1981 |
| Cherry B. Cedarleaf, Mahtomedi
Born 1924 — Died April 25, 1981 | Max F. Lindquist, West Des Moines
Born 1927 — Died September 1, 1981 | Elmer A. Smisek, North Hudson, WI
Born 1904 — Died May 14, 1981 |
| Eli E. Christensen, Winona
Born 1898 — Died September 14, 1981 | Daniel A. MacDonald, Minneapolis
Born 1886 — Died December 29, 1981 | Herbert G. Strait, Fridley
Born 1932 — Died September 23, 1981 |
| Earl R. Crow, Northfield
Born 1897 — Died August 9, 1981 | Robert S. Madland, St. Paul
Born 1898 — Died December 29, 1981 | Jonas Strauchler, Belview
Born 1909 — Died August 13, 1981 |
| Michael Danyluk, Edina
Born 1919 — Died March 2, 1981 | Thomas B. Magath, Rochester
Born 1895 — Died January 30, 1981 | Murray A. Tanasichuk, St. Paul
Born 1928 — Died March 2, 1981 |
| John L. Durkin, St. Paul
Born 1930 — Died May 2, 1981 | Robert J. McClellan, St. Paul
Born 1924 — Died May 26, 1981 | Joseph H. Taylor, Ft. Lauderdale, FL
Born 1897 — Died February 4, 1981 |
| Samuel D. Dworsky, Edina
Born 1900 — Died September 25, 1981 | Frank J. Milnar, Sr., Mendota Heights
Born 1913 — Died January 22, 1981 | Bernard J. Terrell, Mt. Vernon, MO
Born 1907 — Died March 5, 1981 |
| John R. Earl, St. Paul
Born 1908 — Died May 30, 1981 | Raymond K. Minge, Granite Falls
Born 1913 — Died January 24, 1981 | James P. Tetlie, Duluth
Born 1922 — Died January 14, 1981 |
| John E. Eckdale, Marshall
Born 1915 — Died May 18, 1981 | Herman J. Moersch, Rochester
Born 1895 — Died November 23, 1981 | Harold J. Walder, Duluth
Born 1906 — Died May 24, 1981 |
| James R. Forsythe, St. Paul
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Born 1899 — Died October 19, 1981 |
| | Rudolph J. Ripple, Sr., Minneapolis
Born 1899 — Died July 3, 1981 | |

Cerebrospinal Fluid Otorrhea Presenting as Serous Otitis Media

GEORGE L. ADAMS, M.D.;* GERALD MCCOID, M.D.;† and DEBBIE WEISBESKI‡

Three patients had typical symptoms, physical findings, and audiometric findings of serous otitis media. Persistence of symptoms, in spite of treatment, and profuse drainage from the ear after insertion of a ventilation tube led to additional diagnostic evaluation. The middle ear fluid was found to be cerebral spinal fluid and a dural leak was proven by fluorescein dye injection. Differential diagnosis of causes of middle ear fluid, evaluation for possible cerebral spinal fluid otorrhea, and treatment by a transmastoid approach are discussed.

THE PRESENCE OF fluid in the middle ear cleft can be explained by a variety of causes. It generally is assumed to represent serous otitis media secondary to Eustachian tubal dysfunction or obstruction. Presence of the fluid alone will cause a mild conductive hearing loss. There should not be any associated sensorineural component. The patient complains of fullness as well as hearing loss. This middle ear fluid is usually a transudate.

Fluid can also enter the middle ear space from congenital deformities of the inner ear, from the region of the oval or round window, or from a defect in the tegmen of the middle ear or mastoid. Autopsy studies have established that there is a 6% incidence of defects in this bony barrier separating the middle ear or mastoid from the dura. Cerebrospinal fluid may reach the middle ear and drain down the Eustachian tube when there is a destructive lesion of the middle ear or mastoid, such as a cholesteatoma.

Three cases of cerebrospinal fluid otorrhea are presented. The patients all had such typical symptoms of serous otitis media that they were initially treated for it. Failure to respond to treatment suggested another etiology for the fluid.

Causes of Middle Ear Fluid

Serous otitis media is the most common cause of conductive hearing loss in preschool and early school age children. A child suspected of having a hearing loss is evaluated by tuning fork, audiologic or tympanometric studies, as well as an otoscopic exam. There is usually a history of recurrent upper respiratory infections and recurrent episodes of acute otitis media. The hearing loss may first be recognized on a preschool

audiological evaluation or during a routine physical examination. Serous otitis media often resolves with or without treatment within a few weeks following the upper respiratory infection or otitis media. Some children have a predilection to the problem. They have repeated episodes or have persistent fluid in the ear and after treatment the fluid and hearing loss persists. An associated history of rhinitis or of allergies may suggest an underlying allergic problem requiring evaluation. In other children adenoid hypertrophy may be associated with Eustachian tubal dysfunction. Persistent hearing loss after medical treatment for six to eight weeks requires consideration be given to performing a myringotomy and inserting a ventilation tube. This tube eliminates the negative pressure and permits fluid in the middle ear space to absorb. Adenoidectomy is performed only when the adenoids are markedly enlarged and felt to be part of the underlying etiology.

In other children, dysfunction of the tensor veli palatini muscle, secondary to submucosal cleft or cleft

TABLE

Causes of Middle Ear Fluid

Serous Otitis Media

Allergy
Eustachian Tubal Obstruction
Palate Defects
Nasopharyngeal Tumors
Barotrauma

Cerebrospinal Fluid Otorrhea

Basilar Skull Fracture
Cholesteatoma
Congenital Dehiscence
Previous Mastoid Surgery
Patent Cochlear Aqueduct

Perilymph Leak

Oval Window Leak
Round Window Leak
Congenital Deformities
Hyrtl's Fissure
Trauma
Blunt
Barotrauma
Penetrating

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palate, is felt to be the cause of recurrent otitis media. In such children ventilation tubes may have to be repeatedly inserted until early adolescence.

The majority of serous otitis media occurs in young children, but serous fluid in the ears of adults is not unusual. It is particularly prevalent after an influenza epidemic. Again, when there is a failure to relieve the fluid by positive pressure maneuvers, such as a Valsalva or decongestant/antihistamines and occasional use of antibiotics, a myringotomy may become necessary regardless of the age of the patient.

Young adults develop serous otitis media following an upper respiratory infection, sinusitis, or associated with hay fever or other forms of allergic disorders. Eustachian tubal obstruction secondary to nasopharyngeal tumor must always be considered in an adult and especially when a unilateral fluid filled ear is present. A nasopharyngeal carcinoma can occur in persons in their 20's and 30's. While the unilateral fluid filled ear can be a presenting symptom or nasopharyngeal carcinoma, our own experience suggests that a lump in the neck is the most common first sign.

Barotrauma secondary to rapid changes in pressure may also lead to Eustachian tubal dysfunction; an increased opening pressure of the Eustachian tube leads to a negative pressure in the middle ear. When this symptom is not relieved by positive pressure maneuvers, (i.e. Valsalva), transudate may form in the middle ear.

Far less common causes of middle ear fluid include leakage or cerebrospinal fluid or a leakage of inner ear fluid into the middle ear space. In such cases when the drumhead is intact, the fluid drains down the Eustachian tube and causes the symptom of a salty taste in the back of the mouth. It presents as rhinorrhea in the head-down position.

Perilymph is a clear inner ear fluid which fills the membranous labyrinth. Under normal circumstances there is no possible way it can communicate with the middle ear space. However, a fistulous tract can develop near the stapes footplate with drainage of this fluid into the middle ear. In this situation there should always be an associated sensorineural hearing loss. The amount of fluid is so minute that, while it can be associated with severe hearing loss or act as a pathway for the development of meningitis, it does not present as a fluid-filled middle ear. There are reports of removal of the stapes during middle ear surgery in which copious perilymph fluid fills the middle ear space. This situation has been attributed to a patent cochlear aqueduct connecting the arachnoid space to the middle ear. Spinal fluid pours freely into the middle

ear. This rare condition is generally associated with congenital hearing loss.

The round window membrane is another area for possible perilymph leakage into the middle ear space. Round window fistulas have been reported with rapid descent as in diving or in barotrauma. Again, sensorineural hearing loss, which may be steady or fluctuating but gradually progressive, or a mixed conductive and sensorineural hearing loss with a large sensorineural component would be present.

Another potential communicating pathway between the spinal fluid and the middle ear is directly through the internal auditory canal, through the dural sheaths, and then through the modiolus into the perilymph. Leakage occurs from the area of the oval window around the stapes or through the round window membrane. A crevice exists beneath the round window in close communication between the dura and the middle ear, and is referred to as the niche of Hyrtl. This represents another theoretical space through which a mixture of spinal fluid and perilymph could enter the middle ear space.

Trauma is by far the most common cause of cerebrospinal fluid otorrhea. The injury is in the form of a basilar skull fracture with either a transverse or longitudinal fracture of the temporal bone. When a longitudinal basilar skull fracture occurs, there is a tear of the drumhead. Spinal fluid leakage can be exuberant with actual pouring of the fluid out the external ear canal. Fluid drainage is decreased by head elevation. Within a few days, as the patient's general condition improves, spinal fluid drainage diminishes. When flow does not cease after a period of two to three weeks with conservative treatment of head elevation and bed rest, closure of the defect must be considered.

Cerebrospinal fluid leakage into the middle ear may also result when a destructive process, such as chronic granulomatous mastoiditis or a cholesteatoma, has eroded the protecting bone of the mastoid. In this situation meningitis or other intracranial complications could occur (Table).

Case Reports

Three patients will be discussed who did not fit any of the common causes for the development of a fluid-filled middle ear space. The past histories were entirely devoid of recurrent infection, meningitis, or any form of trauma. Examination of the middle ear space failed to reveal any abnormality other than presence of fluid behind an intact drumhead. Conductive hearing loss was the primary presenting symptom. In all cases, careful otolaryngologic examination found a normal nasopharynx and there were no

symptoms suggestive of an underlying allergy. All patients were initially treated conservatively for their symptoms. Persistence of the symptoms after prolonged periods of time, in one case seven to eight years, eventually led to the performance of a myringotomy with insertion of a teflon collar button tube. The rapid drainage of fluid from the middle ear space made it apparent that this was more likely fluid than the transudate of serous otitis media.

Case 1

This 27-year-old man presented with a history of recurrent episodes of hearing loss due to a fluid ear. He had been treated on multiple occasions with ventilation tubes. During his most recent examination clear fluid was seen coming through the left tube. He was admitted to the hospital on 11/6/77. He underwent a lumbar puncture with injection of fluorescein dye. The opening pressure was 18 cm. One cc of a 5% fluorescein solution was diluted with 10 cc of spinal fluid and injected slowly over a period of five minutes. Within 15 minutes green fluorescein dye could be seen dripping from the left ear when a Woods light was shown on the ear.

Further past history revealed only some "blackout spells" in 1974. There was no history of head injury and no known history of spinal fluid leakage in the past. He had no episodes of meningitis, but he did complain of a low-grade fever and headaches in 1975, for which no etiology had been established and was attributed to a cerebritis of viral origin. Mastoid Xrays were obtained and were normal. Examination of the spinal fluid for protein electrophoresis was normal. There was one leukocyte and one monocyte present on the white cell count. A CT scan was obtained and was likewise normal. On 11/22/77, he underwent an exploratory mastoidectomy. A dehiscence portion of the tegmen tympani was found with approximately one square cm of dura exposed. Surgery included a complete mastoidectomy, further exposure of the small dural defect, placement of temporalis fascia on the middle cranial fossa side of the exposure, as well as on the mastoid side of the exposed area. A temporalis muscle was swung in to fill the mastoid space and further pack off the dehiscence region. Postoperatively, he had a persistent conductive hearing loss. In February 1978, he developed symptoms of acute otitis media and mastoiditis following an upper respiratory infection, but no evidence of meningitis. He developed considerable

pain in his left ear during this period of time and was treated by his family physician. A repeat evaluation in 1980, failed to reveal any evidence of fluid present in the left ear and there was only a 10 dB conductive hearing loss.

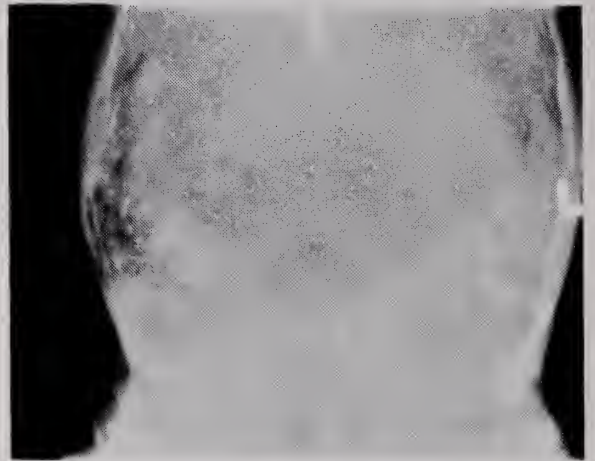


Fig. 2 — Symmetrically developed mastoids with cloudy left mastoid suggestive of fluid.

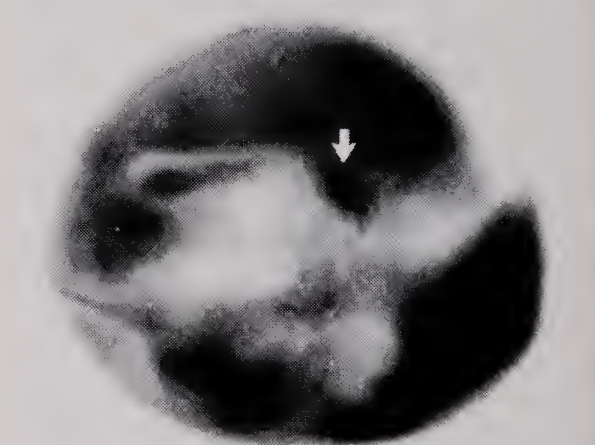


Fig. 3 — Erosion of the mastoid tegmen as seen on polytomography.

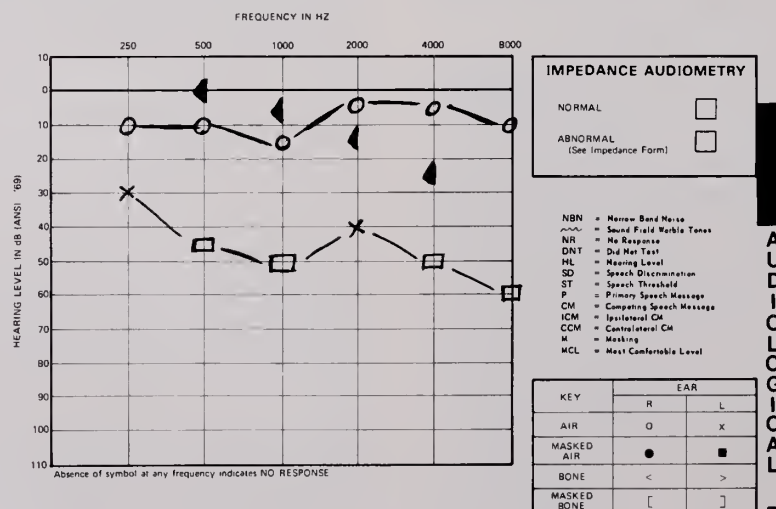


Fig. 1 — Audiogram (Case 1).

CEREBROSPINAL FLUID OTORRHEA — ADAMS ET AL.

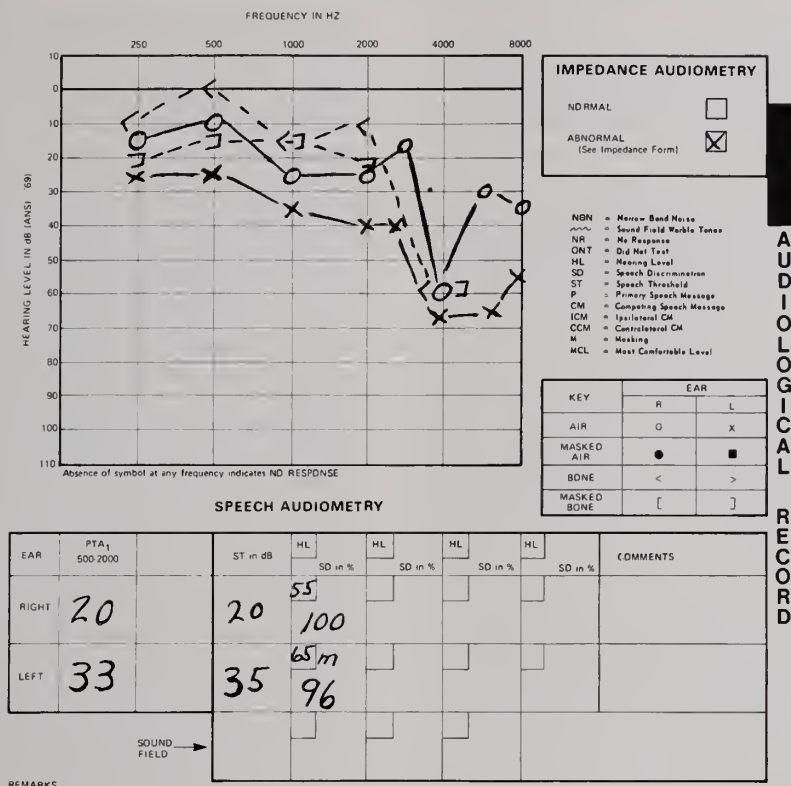


Fig. 4 — Audiogram (Case 2).

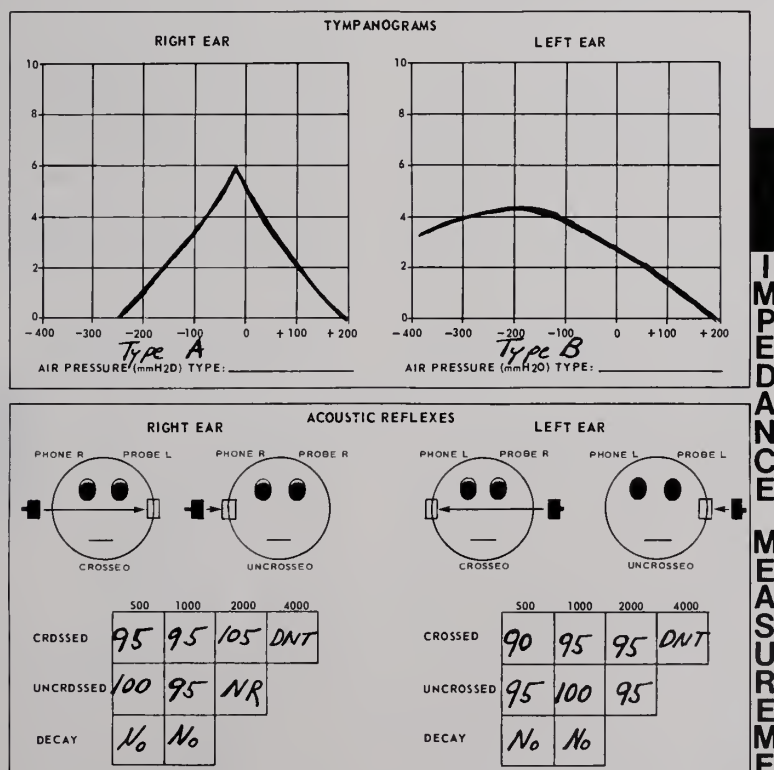


Fig. 5 — Tympanogram (Case 2).

Case 2

This 43-year-old woman had intermittent hearing loss in the left ear for seven years. She had no history of head trauma or meningitis. She denied ear drainage or infection. Examination in the office revealed fluid to be present in the middle ear. Medical management failed and a myringotomy with tube placement was performed. Very clear serous fluid was present. A copy of her preoperative audiometric evaluation and tympanogram is seen in Figures 4 and 5. Persistent drainage of fluid through the myringotomy site resulted in transfer to the University of Minnesota with a diagnosis of suspected cerebrospinal fluid otorrhea. A neurosurgery consultation revealed no other abnormality. In an effort to establish whether the serous fluid was secondary to serous otitis media or was actually spinal fluid, a lumbar puncture was performed. The opening pressure was 20 cm. One cc of fluorescein dye was injected as in patient #1. Within 15 to 20 minutes the greenish colored fluid was seen to fluoresce coming through the PE tube. On 8/8/80 the patient underwent an exploratory mastoidectomy and a defect in the mastoid tegmen was identified. It was repaired and packed with fascia and muscle as in Case #1. The patient was discharged on 8/11/80 to be followed carefully.

In March 1981, she developed severe headache, lethargy, and stiffness of the neck. With a presumptive diagnosis of meningitis, the patient was transferred to the University of Minnesota Hospital. Lumbar puncture revealed *Streptococcus pneumoniae* present in the spinal fluid. She was treated intensively with intravenous antibiotics for ten days. Her symptoms cleared rapidly after the initiation of the intravenous penicillin. Repeat lumbar puncture was then performed and was normal. Matrizamide study with CT scan failed to demonstrate cerebrospinal fluid otorrhea. The left tympanic membrane was intact and there was no evidence of fluid present in the middle ear space. The patient denied the symptoms of drainage in the back of the pharynx. Re-exploration of mastoid was not considered and the patient has had no further symptoms.

Case 3

This 66-year-old woman first complained of vertigo and hearing loss in the left ear in May, 1979. She was initially treated for serous otitis media with customary medical management and the fluid gradually resolved (Figure 6). By August 1979, the fluid reaccumulated and a ventilation tube was inserted. The patient then developed tinnitus in the left ear. The drainage persisted intermittently through the tube and in August 1980, the tube was removed. The patient now complained of a salty taste in the throat

and developed vertigo with upper respiratory infections. She denied any trauma to the left side of her head and any history of past pain, infections, or meningitis. Her past history included only a tonsillectomy and adenoidectomy as a child. Her neurological examination was normal. On 2/4/81 the patient underwent intrathecal fluorescein injection with one cc of fluorescein solution diluted with 10 cc of spinal fluid. Opening pressure at the time of lumbar puncture was 20.5 cm. Dye was seen coming from the left ear two hours afterwards and soaked the cotton placed in the ear canal. Surgery was performed on 2/9/81 with closure of a leak found in the tegmen of the mastoid. Again at surgery a 0.5 — 1 cm area of exposed dura surrounded by non-infected granulation tissue was present. The bone in the area was soft. No brain or herniation of brain tissue in the mastoid space was noted. Because this defect was slightly larger than the previous two patients, gelfilm and two layers of fascia were utilized in the closure. Again a large temporalis muscle flap was swung into the mastoid defect to close off the area of the dehiscence. Her postoperative course was entirely satisfactory and she was discharged in four days. The patient has continued asymptomatic during this period of follow-up.

Discussion

The similarity of the presenting symptoms; patient complaints, audiometric evaluation, and hearing loss in these three patients is remarkable. The initial work-up prior to surgery in all cases included a CT scan to determine any underlying cerebral problem. The size of the ventricle was noted. Lumbar puncture was performed when there were no signs of elevation of pressure. The cerebrospinal fluid pressure might be normal because of the presence of the leakage. Fluorescein dye injection was selected because of its safety, lack of post-injection symptoms, and because of ease in seeing this green dye present in the middle ear when a Woods light was used. With a ventilation tube in place, it was possible to see a small amount of fluid around the tube. Certainly in the presence of obvious cerebrospinal fluid otorrhea, such as occurs after trauma, the use of an intrathecal dye would not be indicated. Prolonged history and indecision with

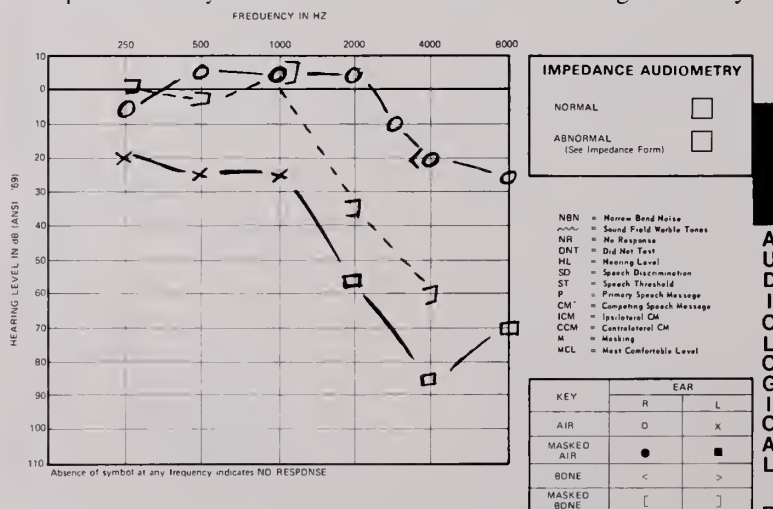


Fig. 6 — Audiogram (Case 3).

whether one was dealing with serous otitis media or spinal fluid, however, made the test very useful. Another dye which could have been used is indigo carmine. This purple dye has also been shown to be safe and is injected in a similar manner as fluorescein. Evans blue, methylene blue, and toluidine blue are contraindicated as they have caused either arachnoiditis, meningitis, or even quadriplegia. Radioactive tracers have also been recommended. Radioactive iodine is currently no longer used because of the occasional development of aseptic meningitis. Radioactive DTPA (diethylenetriaminepenta-acetic acid) is the current favorite radioactive tracer. While this test has also been established to be effective, it is certainly not administered with as much ease as the more simple dye test. Additionally, the dye tests have the advantage that the dye can be injected intrathecally immediately preoperatively and help in locating the leak at the time of surgery. The radiological study that was most helpful was polytomography with careful attention to evaluation of the tegmen tympani and tegmen mastoideum. Simultaneous injection of pantopaque was not used in this study, but has been reported to assist in establishing whether the source of the leak is the internal auditory canal, as the dye can be seen flowing into the middle ear. Matrizamide can be used as a contrast material in a CT scan. This method was used with patient #2 to try and establish whether the cerebrospinal fluid was again leaking through the same defect. All patients underwent a CT scan prior to lumbar puncture. The presence of any primary defect, tumor, in the central nervous system had to be ruled out prior to any form of intervention from the mastoid area.

Treatment

Once it is established that the fluid in the middle ear is spinal fluid, the defect should be surgically repaired. There are two ways of repairing the defect: (1) through the middle cranial fossa and (2) patching the area from the mastoid with fascia. The middle cranial fossa approach is effective. Its greatest drawback is in establishing the location of the defect. Fluid cannot be seen to be pouring from the site of the small defects. The mastoid approach allows immediate localization. It also permits ruling out the possibility that there is perilymphatic fluid entering the middle ear space through an oval window or round window defect. The mastoid cells can be exonerated and the tegmen or roof of the mastoid can be evaluated from below. The area over the middle ear, mastoid, and posterior fossa can

be examined directly. The presence of granulation tissue suggests the site of the leakage. The clear fluid can be seen coming from the defect. The fascia can be inserted through the defect and then by elevation of the dura can be spread out and placed between the dura and the tegmen. In any large defect over 1 cm in size, the combined approach utilizing the skills of the neurosurgeon from above and the otolaryngologist from below, to doubly pack off the defect as in a sandwich manner, would be most effective.

Summary

Three patients with long term middle ear fluid problems, suspected for several years secondary to serous otitis media, were eventually found and proven to have cerebrospinal fluid otorrhea. In all three cases the mastoid tegmen with dural dehiscence was the source of the defect and spinal fluid leakage. All three leaks were repaired in a similar manner. One patient has developed a postoperative meningitis which resolved rapidly without residual problems.

Middle ear fluid in a patient with no history of trauma, infection, or meningitis would suggest the presence of the more common serous otitis media. Evaluation of the nose and nasopharynx for Eustachian tubal obstruction must be performed. Once it is established that this was spinal fluid leakage, the patient should be taken to surgery and the leak repaired.

Any patient, regardless of age, in whom the fluid ear problem is unilateral, who has a conductive hearing loss, and who eventually requires a myringotomy, should have the fluid carefully evaluated. The presence of clear fluid in the middle ear space or fluid which persistently drains from the ventilation tube strongly suggests that this is cerebrospinal fluid. If possible, enough fluid should be collected to be sent to the laboratory for evaluation of sugar content. Dextrostick, or other similar type rapid tests for glucose, are frequently inaccurate and should not be relied upon. Uncertainty of the etiology requires further evaluation which should include CT scan and polytomography. If a leak can be demonstrated, no further testing is necessary and the patient should be taken to surgery for exploration and repair of the leak. On the other hand, if it is not certain as to whether one is dealing with spinal fluid or some other cause of middle ear fluid, intrathecal dye injection may be helpful in establishing the diagnosis. In this study the single most useful radiologic test was polytomography.

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Letters to the Editor

Dear Editors:

Weight certification for high school wrestlers has been a frustrating experience for the physicians of our group. We know that rapid or excessive weight loss in high school boys is detrimental to their health, however, we have not had a systematic method for certifying minimum weights for wrestlers in the past. In 1981, after reviewing the available literature, we instituted the following program which may be of use to other physicians.

One evening six to eight weeks prior to the official weigh-in, all those intending to wrestle were weighed stripped on the official scale, and then four skin fold thicknesses were measured using a Harpenden caliper. Measurements were taken from horizontal folds on both sides of the umbilicus midway to the anterior axillary line and from oblique skin folds just below the tips of both scapulae. These measurements were later used to calculate the body density and percent body fat according to the following formulas:

$$DB = 1.108 - 0.00168 \times AVSF - 0.00127 \times AVAF$$

Where DB is the body density in grams per cc. AVSF is the average of the two subscapular measurements in mm. and AVAF is the average of the two abdominal measurements in mm.

$$\text{Percent BF} = 100 (4.570/DB - 4.142)$$

Where percent BF is the percent of the total body weight which is fat.

Since it has been recommended that the minimum allowable body fat be no less than 5%, this was used to calculate a theoretical weight for each boy at which his total body fat would be 5% using the following formula:

$$W_{5\% \text{ fat}} = W_{\text{actual}} (1 - \text{percent BF} - 5)$$

For example, if the abdominal measurements were both 12 mm., and the subscapula measurements both 11 mm., then the body density would be 1.074 gm. per cc. and the percent body fat would be 11.3 percent. We would then allow him to lose 6.3 percent of his body weight before the official weigh-in. After these calculations have been completed, the coaches were given a list of the boys' names and the minimum allowable weights. Instructions were given on gradual weight loss by means of increased exercise, and a diet of no less than 2000 kilo calories per day with a maximum allowable weight loss of four to five pounds a week.

The accuracy of this approach and the assumptions involved are explained in references 1 and 2. Although there are many possible areas of error, this approach does provide some rational method for avoiding the most gross abuses.

The method was generally well accepted by coaches and students. There were exceptions and we were willing to compromise a few pounds in older and heavier boys. The parents were most appreciative of this approach and the wrestling team did quite well this year, reaffirming our opinion that dehydration and malnutrition are inimical to optimal athletic performance.

Richard D. Sudmeier, M.D.
Worthington, Minnesota

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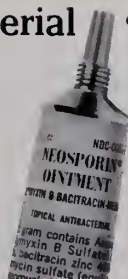
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References: 1. Shaw S, Lieber CS: Nutrition and alcoholism, chap. 40, in *Modern Nutrition in Health and Disease*, edited by Goodhart RS, Shils ME. Philadelphia, Lea & Febiger, 1980, pp. 1220, 1237. 2. Watkin DM: Nutrition for the aging and the aged, chap. 28, in *Modern Nutrition in Health and Disease*, op. cit., p. 781. 3. Shils ME, Randall HT: Diet and nutrition in the care of the surgical patient, chap. 36, in *Modern Nutrition in Health and Disease*, op. cit., pp. 1084, 1089, 1114. 4. Dixon RE: *Ann Intern Med* 89 (Part 2): 749-753, Nov 1978. 5. Committee on Dietary Allowances, National Research Council: Recommended Dietary Allowances, ed 9. Washington, National Academy of Sciences, 1980, p. 13.

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Parotid Gland Tumors

I. E. FORTUNY, M.D.*, R. HAMMERSTROM, M.D.†, M. J. ZESBAUGH†,
C. L. MURRAY, M.D.*, J. WALLACE‡

This review describes the registry recorded clinical experience of two metropolitan hospitals of parotid tumors in a 23-year period from 1957 to 1980. There were 143 parotid tumors. These included: 91 pleomorphic adenomas (mixed tumors), 20 mucoepidermoid carcinomas, nine adenocarcinomas, five adenoid cystic carcinomas, four acinar carcinomas, five squamous cell carcinomas, eight lymphomas, five adenocarcinomas developing in pleomorphic adenoma, and rhabdosarcoma. The diagnostic approach, histologic classification, clinical staging, management and survival are reviewed. Proposed sequences for treatment are outlined.

All information was obtained from the Upper Midwest Oncology Registry Systems (TUMORS)¹ a computerized program serving Methodist Hospital and Metropolitan Medical Center, Minneapolis, Minnesota.

THE PAROTID GLAND is an unusual site for cancer to develop. According to the American Cancer Society,² only 1% of all cancers occur in the parotid gland, with 650 cancer deaths a year attributable to it. Their rarity, coupled with the complex anatomy of the area and the numerous histopathologic possibilities associated with a parotid mass, limits medical expertise in the diagnosis and management of these tumors.

Pathologic Classification

An accurate histopathologic diagnosis must be the first step before definitive treatment principles can be defined. The classification of Batzakis³ has been proposed by several investigators^{4,5} as clear enough for the present until experience in its use determines if the clinical behavior of each tumor justifies its inclusion into a more general histologic category. Epithelial salivary gland tumors are thus classified:

Benign lesions

- A. Pleomorphic adenoma (mixed tumor)
- B. Papillary cystadenolymphoma (Warthin's), frequently bilateral
- C. Oncocytoma
- D. Monomorphic adenoma
 - 1. Basal cell
 - 2. Glycogen rich and clear cell
- E. Sebaceous adenoma and lymphadenoma
- F. Papillary ductal adenoma
- G. Benign lymphoepithelial tumor

Malignant lesions

- A. Carcinoma in pleomorphic adenoma (high

grade)

- B. Mucoepidermoid carcinoma: low, intermediate and high grade
- C. Adenoid cystic carcinoma
 - 1. Hybrid basal cell
 - 2. Adenoid cystic (high grade)
- D. Acinic carcinoma; low grade (bilaterally)
- E. Adenocarcinoma
 - 1. Mucous producing (papillary and nonpapillary)
 - 2. Ductal carcinoma (high grade)
- F. Oncocytic carcinoma
- G. Clear cell carcinoma
- H. Epithelial/mioepithelial of intercalated ducts
 - I. Squamous cell carcinoma (high grade)
 - J. Undifferentiated
- K. Miscellaneous: sebaceous, Stensen's duct, melanoma, carcinoma arising from lymphoepithelial lesion
- L. Metastatic

The correlation of histopathologic type and biologic behavior allows for the further classification of these tumors into low and high grade. The expected five year/10 year survival percentile by histologic type⁵ has been reported as follows: mucoepidermoid low grade 97/94%; high grade 56/28%; acinous cell 90/80%; adenocystic 75/29%; adenocarcinoma 75/30%; mixed tumor 64/25%; squamous cell 44/22%; undifferentiated 44/22%.

Prognosis is also associated with the following variables: tumor size, mobility of tumor, skin involvement, facial nerve function and cervical lymph node involvement.

Staging System

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†Tumor Registry, Metropolitan Medical Center, Minneapolis, Minnesota

‡Director, The Upper Midwest Oncology Registry System (TUMORS), Methodist Hospital, St. Louis Park, Minnesota

and End Results Reporting recommends the system described in Table 1.⁶ Other authors have reported survival following that system with only one variable changed, that is tumor size: T₁ 0-3 cm, 3-6 cm for T₂ and more than 6 cm for T₃.⁷ Survival rates in this series were 85% for T₁, 67% for T₂ and 14% for T₃ cancers.

TABLE 1
AJC Staging
Parotid Cancer

T ₁ 0-2 cm diameter Solitary	T ₂ 2-4 cm Solitary	T ₃ 4-6 cm Multiple roles or Deep Fixation or Skin Ulceration	T ₄ 6 cm
Mobile	Mobile or Reduced Mobility	Facial Nerve Dysfunction	Extra Parotid Spread
Facial Nerve Intact	Facial Nerve Intact		

Involvement of cervical lymph nodes seems to be closely related to mucoepidermoid and squamous cell tumors. Spiro⁷ found occult metastasis in 16 and 40% respectively, and reported an incidence of 1% in T₁ tumors, 14% in T₂ tumors, and in T₃ the incidence rose to 67%. The incidence of distant metastasis was 2% in T₁ tumors and 39% for T₃ tumors. The recurrence rate was 7% in T₁ tumors and 58% in T₃ tumors.

The highest incidence of distant metastasis was significant in adenocystic carcinoma, adenocarcinoma and squamous carcinoma.

Materials and Methods

Data on 143 parotid gland tumors were entered in the computer registries of both hospitals for the period January, 1957, to December, 1980. Sixty-eight of the patients were diagnosed at Metropolitan Medical Center and 75 at Methodist Hospital. All entries were tested for the items on Table 2. Description of histopathology, tumor size, and primary treatment were acceptable, and in all malignant tumors

these three items were available. Clinical stage had to be determined separately for each tumor, reflecting the lack of an acceptable staging system. Of the patients in the study, 35 from Metropolitan Medical Center and 56 from Methodist Hospital had pleomorphic tumors. Of the remaining tumors, 33 cases were registered from Metropolitan Medical Center and 19 from Methodist Hospital.

Results

Pleomorphic adenoma (mixed tumor) is characterized by a mixture of epithelial and mesenchymal components, not surrounded by a capsule at all points, and capable of sending out lobed processes — like pseudopodia in normal salivary tissue. This method of growth explains why they may recur and thus be thought to be malignant.⁸ It is the most frequent of the parotid gland tumors, 63.6% in our sample.

The incidence of malignancy in pleomorphic adenoma is cited to be 2 to 4%. In this series there were five patients who developed carcinoma in pleomorphic adenoma. Two patients had a T₁ stage tumor and underwent total parotidectomy, and in the remaining three patients (stage T₂) a total parotidectomy and irradiation were used. None had facial nerve deficits, and their survival free of tumor extended from 4 to 36 months.

Mucoepidermoid carcinoma contains a mixture of epidermoid and mucous secreting cells and is separated into low and high grade on the basis of its histologic appearance. The five-year cure rate is between 92 and 27% respectively.⁷ We found 20 such carcinomas; 14 were considered low grade and six high grade. Of the former, all treated with total parotidectomy, eight were stage T₁ and six were stage T₂. Their tumor-free survival extended from 2 to 140 months. Of the high grade malignant tumors, two had lymph node as well as facial nerve involvement. They were treated by total parotidectomy, facial nerve dissection and irradiation; their tumor-free survival extended from 30 to 42 months respectively. Of the remaining four patients, all treated by total parotidectomy, only one had facial

TABLE 2
Data Entry and Retrieval

Computer Print Out Information	Age/ Sex	Date of Diagnosis	Histopathology and Size of Tumor	Clinical Stage	Primary Treatment	Survival
Available (percent)	100	100	80	0	12	100
Not available†			12	66	82	
Not available*			8	34	6	

†Available in the raw data forms pre-entry into computer

*Requiring obtaining data directly from hospital record, or other source.

nerve involvement. The disease-free survival extended from 12 months (for this patient) to 98 months.

Adenocarcinoma is characterized by two histologic features, mucous and papillary structures, with varying degrees of differentiation and either high or low grade malignant nature.³ Nine such tumors were encountered in this study, of which three were termed poorly differentiated low grade; the rest were classified as undifferentiated intermediate to high grade. The former were treated by total parotidectomy. Only one had facial nerve involvement and all were stage I. Survival, free of disease, was one month for the patient with facial nerve involvement and 240 months for the other two patients. Of the six patients with undifferentiated tumors, one was stage T₁ with positive nodes and was treated with total parotidectomy with disease-free survival of four months. Two were stage T₃ tumors, with survivals of 32 and 168 months respectively. The remainder had node and facial nerve involvement and were treated by total parotidectomy and irradiation. They were the most recently treated patients in the group, and their survival from end of treatment had not exceeded six months.

Adenoid cystic carcinoma, is a slow growing tumor, probably originating from the intercalated duct cells. It has a pronounced tendency to neural invasion.⁹ Metastases to the lungs are found in 40% of instances.⁴ Five such tumors were available in this sample. Three were stage T₁, treated by total parotidectomy. One had facial nerve involvement with only four months of follow-up; the other two had survived in excess of 190 months without recurrence. Two patients with stage T₃ tumors and nerve involvement were treated by total parotidectomy and irradiation; their follow-up to date and tumor-free extends 13 and 24 months respectively.

Acinic cell carcinoma, is a rare tumor, occurring predominantly in women. It consists of epithelial cells surrounded by a fibrous capsule^{3,4} and is multifocal with a long clinical course in spite of 16% incidence of nodal involvement.⁷ Four such tumors were studied. Two were stage T₁, treated by total parotidectomy and surviving 84 and 43 months without tumor recurrence. One was stage T₂ with facial nerve involvement treated surgically and surviving 36 months without recurrence. The last patient was stage T₃ with nodal and nerve involvement. Treatment was surgery and irradiation, and only eight months from treatment, the patient remains disease free.

Squamous cell carcinomas are found in less than

TABLE 3
Tumor Type, Sex and Age

Tumor	Sex		Age-Range	
	F	M	F	M
Pleomorphic adenoma	54	37	18-81	17-83
Mucoepidermoid carcinoma	12	8	16-77	12-65
Adenocarcinoma	5	4	43-78	39-83
Adenoid cystic carcinoma	4	1	28-29	79
Acinar carcinoma	2	2	15-43	17-34
Squamous cell carcinoma	1	4	76	61-72
Lymphoma	6	2	57-84	64-81
Rhabdrosarcoma		1		18
Adenocarcinoma on Pleomorphic adenoma	4	1	19-81	50

1% of instances. However, their prognosis is very poor and closely related to clinical stage.³ Of the five patients studied, only two had stage T₁ lesions and were treated surgically, surviving tumor free 38 and 250 months respectively. The other three patients all had T₃ lesions with nodal involvement. They were treated with parotidectomy and irradiation, all rapidly progressing to distant metastasis and death. The longest survivor lived 36 months from diagnosis.

Non-Hodgkin's lymphomas. A histiocytic type lymphoma was diagnosed in three female patients. All were studied further and found to have lymphoma localized to the parotid gland. Their survivals free of disease by December, 1980, were seven, 42 and 150 months respectively. In the remaining five patients, a poorly differentiated lymphocytic lymphoma was diagnosed. In all of them, further work-up disclosed disseminated lymphoma, and chemotherapy was used following parotidectomy. All patients are alive in excess of 60 months since diagnosis.

Discussion

The age spread of the population reported in this study ranged from 12 to 81 years with a maximum incidence around the fifth decade. Pleomorphic adenoma represented 60% of our population (after excluding the five patients whose adenoma recurred as adenocarcinoma), well within the reported incidence.^{4,7} Facial nerve involvement in spite of radical dissection is a poor prognostic sign resulting in 15% survival at five years.¹⁰

Histologic descriptions of the tumors studied followed the proposed histologic classification;³ however, clinical staging was not included in the records of these patients and required going back to the raw data for the purpose of this study.

The findings presented appear to be in agreement

with the literature. The role of irradiation cannot be concluded yet since the majority of patients treated have not survived long enough to draw conclusions. As to the role of chemotherapy, none of the patients received it; therefore, no opinion can be given.

Sialometry, scintigraphy and radiosialometry do not completely define the extent of destruction, and they give rise to insecurity concerning the degree of tumor extension into the parotid gland.⁴ Computed tomography, on the other hand, defines the extent

of tumor in the pharyngeal space and involvement of the internal carotid artery.^{4,9}

Following the clinical staging suggested by the American Joint Committee,⁶ Johns suggest that adding the grade of malignancy to these stages helps the clinician in choosing surgery alone or followed by irradiation.⁵ The stage T₁₋₂ low grade malignancy tumors underwent total parotidectomy and were dissected when indicated, and the rest received both treatment modalities.

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Doctors — The Duped Drug Suppliers?

SERGEANT CHUCK HUNZIKER*

Since the sixties, there has been a drug abuse explosion in the United States.

Partially due to the plethora of prescription drugs available, doctors have become, many times innocently, an inexorable link to street pharmaceuticals.

As a narcotics investigator with the St. Paul Police Department, I have had occasion to investigate in excess of 200 forged prescriptions. Those cases involved analgesics such as Dilaudid and Percodan, and the anorexiant, such as Preludin and occasionally Benzedrine. Hycodan, Tussionex, and oddly enough Darvon are gaining increased popularity, with former popular drugs such as Valium and Quaalude waning.

When questioning arrested script forgers, I have been informed pharmaceutical drugs are extremely popular because of the absence of quality control in street drugs, such as cocaine, heroin and L.S.D.

Street drugs are cut or diluted with fillers such as mannitol, or quinine, and the drug addict never knows the quality of drugs he is buying. Heroin, for example, is sold on the street for up to \$400.00 per gram and may contain as little as 3% heroin. If an addict has been consistently "shooting" 3% heroin and receives 30% heroin from another dealer, the result is obvious, he overdoses, often times fatally. Add the fact that street drugs are sometimes cut with strychnine, rat poison and the like, you can readily see the dilemma the addict faces.

With enterprising entrepreneurs selling pulverized Alka-Selzer as cocaine and a myriad of "look-alikes"† flooding the street market, the attractiveness of prescription drugs becomes very clear.

The majority of legitimate drugs sold by drug dealers, come from burglaries and robberies of hospitals and pharmacies. Talwin, a tremendously popular drug when mixed with Pyribenzamine (PBZ) (commonly known as "Ts" and "Blues"), mainly come from Chicago and St. Louis. This writer, along with other police officers has affected numerous arrests and convictions of individuals for obtaining Talwin by forged prescriptions. This, along with enlightened pharmacists and physicians, has made Talwin almost impossible to obtain by prescription, legitimate or otherwise, thus necessitating the immigration of that drug from other cities.

Talwin serves as an excellent example of the ever

escalating prices of otherwise legitimate drugs on the street market. A little over a year ago one Talwin tablet and one PBZ tablet sold for \$3.00 a set. Today the price is \$15.00 and climbing. Dilaudid sells for \$50.00 a tablet, Percodan \$10.00-\$15.00, Preludin \$5.00-\$15.00 a tablet.

Those addicts who cannot, or refuse to pay the exorbitant prices, turn to the physician for their drugs, often going to several physicians at the same time. The addicts then get the drugs they need and sell the rest for a tidy profit, or at the very least, for enough money to pay their doctor bills.

Many physicians are known to the street addicts as "easy touches" for certain drugs. After arresting a woman for obtaining Preludin with a forged prescription she related to me, "I should have gone to Dr.----, all the kids go to him for Preludin and there is never any hassle."

My conscience dictates that I ask you this question, "Are you that doctor, or one like him?" If you write a prescription for a controlled substance in St. Paul, I have seen it, and I can thankfully report there are *very few* physicians like that.

Are you prescribing the medication or is the patient? I am not so presumptuous as to tell you what drugs you should prescribe. I can only share some of the experiences physicians have related to me and share them with you. Migraine headaches and lower back pain are common symptoms given to physicians to obtain dangerous drugs. The patient states he or she has been experiencing pain and only Dilaudid or Percodan or Demerol seems to help. Other ploys that are used are the altering of prescriptions. You write a prescription for 15 tabs or caps, and with a stroke of the pen it becomes "45". You write for 3 refills and again, it becomes "8" or "0" becomes "10". A simple solution is to write out "fifteen tabs", or "zero" refills.

The situation has deteriorated to the point where physicians are actually being threatened to prescribe drugs. Recently, at a local hospital, a physician was threatened and an orderly assaulted because a patient was not prescribed Dilaudid for his pain.

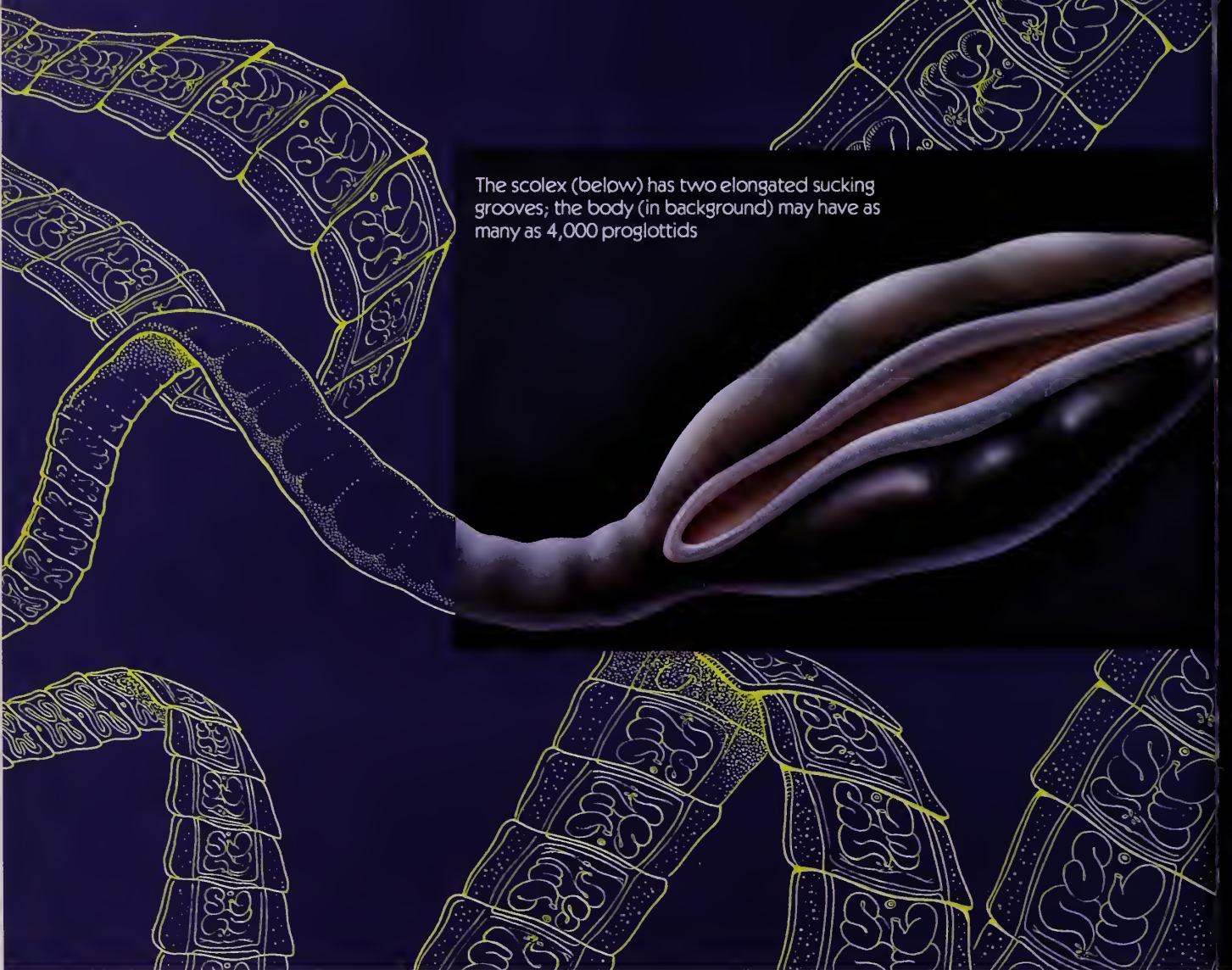
Should any drug related problem arise please feel free to contact me:

Sergeant Chuck Hunziker
St. Paul Police Department, Narcotics Unit
101 E. 10th Street, St. Paul, MN 55101
(612) 292-3756.

* St. Paul Police Department, Narcotics Unit

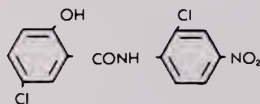
† A capsule or tablet said to be a specific drug but does not proportion to what it is said to be.

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The scolex (below) has two elongated sucking grooves; the body (in background) may have as many as 4,000 proglottids

DESCRIPTION: NICLOCID (niclosamide) is an anthelmintic provided in chewable tablet form at a strength of 500 mg per tablet. Niclosamide is 2', 5'-Dichloro-4'-nitrosalicylanilide. The empirical formula is $C_{11}H_6Cl_2N_2O_4$ with the following structural formula.



CLINICAL PHARMACOLOGY: NICLOCID inhibits oxidative phosphorylation in the mitochondria of cestodes. Both *in vitro* and *in vivo*, the scolex and proximal segments are killed on contact with the drug. The scolex of the tapeworm, loosened from the gut wall, may be digested in the intestine, and thus may not be identified in the feces even after extensive purging. The use of NICLOCID has not been associated with the development of anemia, leukopenia or thrombocytopenia nor have there been any effects on normal renal and hepatic functions.

INDICATIONS AND USAGE: NICLOCID (niclosamide) is indicated for the treatment of tapeworm infections by *Taenia saginata* (beef tapeworm), *Diphyllobothrium latum* (fish tapeworm) and *Hymenolepis nana* (dwarf tapeworm).

CONTRAINDICATIONS: NICLOCID™ Tablets are contraindicated in individuals who have shown hypersensitivity to any of its components.

PRECAUTIONS: NICLOCID affects the cestodes of the intestine only. It is without effect in cysticercosis.

Drug Interactions: No data are available regarding interaction of niclosamide with other drugs.

Carcinogenesis, Mutagenesis, Impairment of fertility:

Carcinogenicity Potential: Although carcinogenicity studies on niclosamide *per se* have not been done, long-term feeding studies on its ethanolamine salt in rats and mice did not show carcinogenicity. Mutagenicity tests have not been performed.

Pregnancy: Pregnancy Category B: Reproduction studies in rabbits and rats at doses of 25 times the human therapeutic dose and in mice at 12 times the human therapeutic dose, have revealed no evidence of impaired fertility or harm to the fetus due to niclosamide. There are, however, no adequate and well-controlled studies in pregnant women. Because animal studies are not always predictive of human response, the drug should be used during pregnancy only if clearly needed.

Nursing Mothers: No studies are available.

Pediatric Use: In children under 2 years of age, the safety of the drug has not been established.

ADVERSE REACTIONS: The incidence of side effects has been reported as follows: nausea/vomiting 4.1%, abdominal discomfort including loss of appetite 3.4%, diarrhea 1.6%, drowsiness, dizziness, and/or headache 1.4%, and skin rash including pruritus and 0.3%. Other side effects listed in decreasing order of frequency were: oral irritation, fever, rectal bleeding, weakness, bad taste in mouth, sweating, palpitations, constipation, alopecia, edema of an arm, backache and irritability. There was also one instance of a transient rise in SGOT in an i.v. narcotic addict. Two cases of urticaria reported may be

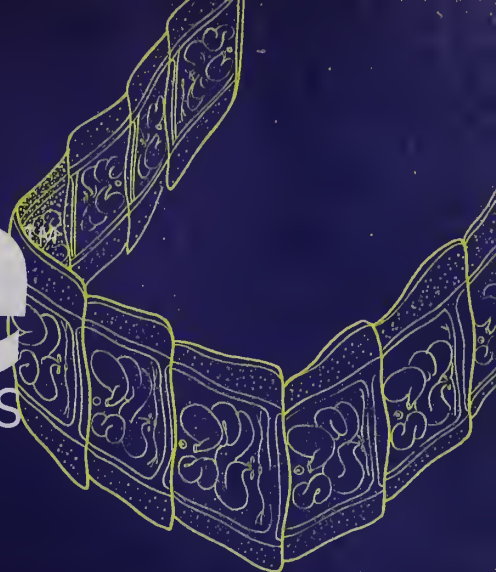
related to the breakdown products of the tapeworm. Side effects were mild or moderate and transitory and did not necessitate discontinuation of the treatment.

OVERDOSAGE: Insufficient data are available. In the event of overdose a fast-acting laxative and enema should be used. Vomiting should not be induced.

DOSAGE AND ADMINISTRATION:

1. *Taenia saginata* and *Diphyllobothrium latum*
 - a. Adults: 4 tablets (2.0 g) chewed thoroughly in a single dose for 7 days.
 - b. Children weighing more than 34 kg (75 lbs): 2 tablets (1.0 g) chewed thoroughly in a single dose.
 - c. Children weighing between 11 and 34 kg (25 to 75 lbs): 2 tablets (1.0 g) chewed thoroughly in a single dose.
 2. *Hymenolepis nana*
 - a. Adults: 4 tablets (2.0 g) chewed thoroughly in a single dose for 7 days.
 - b. Children weighing more than 34 kg (75 lbs): 2 tablets (1.0 g) chewed thoroughly on the first day, 2 tablets (1.0 g) daily for next 6 days.
 - c. Children weighing between 11 and 34 kg (25 to 75 lbs): 1 tablet (0.5 g) to be chewed thoroughly on the first day, 1 tablet (0.5 g) daily for next 6 days.
- T. saginata* and *D. latum* infections are usually single adult worms and require an intermediate host in their life cycle. With *Hymenolepis nana* multiple infections are the rule. No intermediate host is required for both larval and adult stages of the worm may be found in the human intestine where the complete life cycle occurs. Since the drug is more effective against

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Breaks hold of head and detaches segments

NICLOCIDE works promptly and simply. After tablets are chewed thoroughly and washed down with a little water (for children tablets should be pulverized and mixed

with a little water), the insoluble micronized crystals act by direct contact on the tapeworm head. As soon as NICLOCIDE reaches the parasite, the scolex and upper segments are killed, thus depriving the whole chain of its hold. It is then discharged in stool either in one piece or smaller portions.*

Safe and well tolerated/ little gastrointestinal mucosa irritation

NICLOCIDE has proved exceptionally well accepted by adults as well as children weighing more than 11 Kg. (25 lbs.).

Convenient one-day single-dose administration†

NICLOCIDE Tablets are taken as a single dose after breakfast. Tablets must be chewed or pulverized thoroughly and washed down with a little water. No special diet or preparation is necessary except in patients who are constipated. In these cases, a thorough cleansing of the bowels may be required before treatment. The avoidance of alcohol during treatment is the only other requirement.

*A drastic saline purge, such as magnesium sulfate or sodium sulfate should be given two hours after the NICLOCIDE dose if it is required that the tapeworms be expelled rapidly and in one piece.

†In infections with beef tapeworm (*T. saginata*) and fish tapeworm (*D. latum*) one single dose is sufficient; for infections with dwarf tapeworms (*H. nana*) a seven-day treatment is recommended (SEE FULL PRESCRIBING INFORMATION ON THESE PAGES).

more mature than the larval stage, therapy must be extended over several days to cover all stages of maturation. Patients with *H. nana* must be instructed to observe strict personal and environmental hygiene to avoid autoinfection with this parasite.

NICLOCIDE™ must be thoroughly chewed and then swallowed with a little water. No special dietary restrictions are necessary before or after treatment. The best time to take the drug is after a light meal (e.g., breakfast). A mild laxative may be desirable in constipated patients to achieve a normal bowel movement.

Young children should have the tablets crushed to a fine powder and mixed with a small amount of water to form a paste.

NICLOCIDE has a vanilla taste which is not unpleasant to most persons.

NICLOCIDE is suitable for administration on an ambulatory or outpatient basis.

Follow-up: The vermifugal action of NICLOCIDE renders the tapeworm, especially the scolex and proximal segments, vulnerable to destruction during their passage through the gut; it is not always possible to identify the scolex in stools. The sooner the tapeworm is passed and examined after treatment, the better the chance of identification of the scolex. Segments and/or ova of beef or fish tapeworm may be present in the stool for up to 3 days after therapy. Persistent *T. saginata* or *D. latum* segments and/or ova on the seventh day post therapy indicate failure. A second identical course of

treatment may be given at that time.

No patient should be considered cured unless the stool has been negative for a minimum of three months.

HOW SUPPLIED: NICLOCIDE is available as round, light yellow chewable tablets, scored on one side, embossed with the word Miles and number 721, each containing 500 mg of niclosamide, and is supplied in boxes of 4 tablets.

Storage Conditions: Store below 86°F (30°C), avoid freezing.

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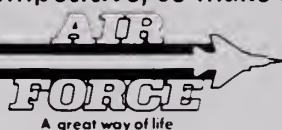
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Minnesota Department of Health

Population-Based Studies of Diabetes Mellitus in Minnesota: Rationale and Methods

JULIA L. WANNAMAKER, Ph.D., M.P.H.;* ALAN P. BENDER, D.V.M., Ph.D.;† and
KENNETH A. MUCKALA, M.D.‡

Under the auspices of the Centers for Disease Control (CDC) Diabetes Control Project, the Minnesota Department of Health (MDH) is initiating population-based epidemiologic studies of diabetes mellitus in Minnesota. The goal of this project is to reduce the morbidity and mortality from diabetes in the state. The first step is to identify aspects of the natural history of diabetes that are amenable to programmatic control. MDH is placing a heavy emphasis on epidemiologic studies to help identify these aspects prior to the design of public health programs for diabetes. It is believed that hospital-based studies would be inadequate to accurately define these problems and therefore more complete population-based methods are being used.

DIABETES MELLITUS is a major public health problem in the State of Minnesota and in the United States. The disease affects over 80,000 Minnesotans and over 5 million Americans and remains one of the top ten causes of death despite considerable underreporting on death certificates.²

The Minnesota Department of Health is in the first year of a Diabetes Control Project funded by the Centers for Disease Control (CDC) to reduce morbidity and mortality from diabetes in the State of Minnesota. Minnesota is one of 20 states with a CDC funded Diabetes Control Program. Each State is charged with identifying diabetes problems within the State and formulating programs. Minnesota is placing a heavy emphasis on epidemiologic studies to help identify the problems prior to full design of public health programs for diabetes. This epidemiologic approach to the public health problems of diabetes is in concert with the recommendations of the Diabetes Epidemiology Workshop which concluded in February, 1981 that there is a dearth of epidemiology and public health research in diabetes.³

One of the major gaps in knowledge has been the paucity of population-based studies of diabetes. Estimates of incidence and prevalence of diabetes are with a few exceptions limited to Health Interview

Data. One of these exceptions is a study by Palumbo for the population of Rochester, Minnesota.¹ Other epidemiologic studies have been limited to hospitalized diabetic patients or diabetics identified by the medical system. However, complete ascertainment of all diabetics in a community is not possible utilizing only hospital records. Those identified would be biased toward the end-stage or complication phase of the disease and/or toward insulin-dependent diabetics. The extent of bias created by these designs is unknown. Therefore, hospital-based record studies are probably inadequate to address many of the additional unanswered questions having major epidemiologic and public health implications for diabetes, such as:

1. What is the incidence and prevalence of Type I and Type II diabetes?
2. What proportion of Type I and Type II diabetics in a defined population can be ascertained through hospital medical records?
Alternatively: what proportion of Type I and Type II diabetics are ever hospitalized?
Alternatively: if diabetes programs are hospital-based, what proportion of the Type I and Type II diabetic population would be reached?
3. What proportion of Type I and Type II diabetics in a defined population can be ascertained through hospital, clinic, and other medical records?

Alternatively: what proportion of Type I and

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Please send reprint requests to Dr. Bender

Type II diabetics can be identified through the entire medical system?

4. What is the total impact of the diabetic patient upon the delivery of medical care? Specifically, the average number of visits to the hospital per year, the average number of visits to a physician (clinic) per year, and the frequency of use of emergency room by Type I and Type II diabetics is unknown.
5. What are the referral and temporal patterns to secondary and tertiary care centers for diabetes complications?
6. What is the disease impact on diabetics? How is their condition synergistic with other diseases and conditions, not just the usual end-stage diabetic problems?

Study Population

It was of interest to examine the above questions in a smaller Minnesota community for several reasons. First, it is necessary to collect descriptive data on diabetes in order to "paint the picture of diabetes" in a more typical community with a self-contained medical system away from the major medical centers in Minnesota and surrounding states. These smaller communities are often over-looked as research selections in preference for larger metropolitan areas with larger numbers of cases for statistical analyses. Second, if a larger area is to be considered for future study, the methods should be first tried in a relatively small community.

The city of Wadena, Minnesota (population 4,699, 1980) was selected as the first small Minnesota town for this study because of its population size, its progressive, interested, and cooperative community, and, also, because it is sufficiently distant from other major medical care centers in Minnesota. Wadena is located approximately 150 miles northwest of Minneapolis and is, therefore, sufficiently distant from Minneapolis, St. Paul, Rochester, and Duluth to discourage travel for routine medical care. Using an average estimate of 2% prevalence of diabetes, we expected to find approximately 100 diabetics in Wadena, which is felt to be the minimum number of diabetics upon which to base a descriptive study.

Wadena has a self-contained medical system consisting of one hospital, one medical clinic with five physicians, public health nursing facilities, and several pharmacies.

The study population consisted of all physician-diagnosed diabetics living within Wadena city limits at any time between January 1, 1979 to June 30,

1981. It was anticipated that most of these diabetics could be ascertained through the Wadena medical system records. It was also anticipated that a certain proportion of diabetics would not be found in the Wadena medical system records.

Methodologic Overview

The aim of the study is to provide a complete picture of diabetes in Wadena and is designed to ascertain diabetics living in Wadena and utilizing medical care in Wadena, diabetics living in Wadena not utilizing medical care in Wadena, and diabetics living in Wadena not utilizing medical care anywhere. All of these sources of information are vital to a complete and accurate descriptive study of this disease.

Confidentiality of information is one of the most important aspects of this project. The entire history of each diabetic will be obtained, whenever possible, which may require piecing together information from charts in several locations within the city. Therefore, it is necessary for the purposes of record linkage that the names of the patients be abstracted. Strict confidentiality will be assured and maintained during all aspects of the study. It is the policy of the Minnesota Department of Health (MDH) to maintain strict confidentiality and by law MDH cannot release information with personal identification.

Diabetics In the Medical Care System

Wadena was contacted initially by the Diabetes Control Project Staff to delineate the hospitals, clinics, and other medical facilities in the city. Formal contact via letters and phone calls were made to each facility to elicit cooperation in the study. These sources will contribute information on most diabetes cases who are in the Wadena medical care system. However, diabetics who have not sought care after January 1, 1979 may be missed since computer printouts of discharges with primary and secondary diagnoses of diabetes will only be requested back to January 1, 1979. This is the first date from which computerized records are available.

Diabetics Not In the Medical Care System

It is recognized that utilizing known medical facility records to ascertain diabetes cases will miss the following cases: diabetics not seeking care in Wadena medical facilities after January 1, 1979, diabetics seeking medical care outside Wadena, and diabetics not seeking medical care. After abstracting all known diabetic charts from the known medical facilities and constructing a master roster of all known diabetics from this endeavor, a concerted

effort will be made to identify all other diabetics living in Wadena. This will be accomplished by a variety of techniques such as the local American Diabetes Association, involvement of civic officials, TV, radio, press, surveys, and pharmacies. The roster of diabetics emerging from these efforts will be cross-checked with the original roster and duplications will be omitted. The residual remaining persons will constitute the group of diabetics not ascertained through medical facility records.

Abstract Forms

A series of abstract forms were designed to abstract relevant diabetes-related information retrospectively from both hospital and clinic records in order to collect information to test the hypotheses outlined above. (Forms may be obtained from the Chronic Disease Epidemiology Section, Minnesota Department of Health.) The abstract form was designed to provide for maximum flexibility and integration into the evaluation of the above questions about the epidemiology of diabetes.

The Chart Coversheet Abstract Form was designed to abstract basic patient information: name for linkage purposes, demographic data required for prevalence estimates, information on the data source (hospital, clinic or physician office), information on original signs and symptoms of diabetes as well as original diagnosis and treatment, family history of diabetes, family order, other parties and physicians involved in patient's diabetes care (for linkage purposes), method by which chart was identified and a narrative retrospective history of diabetes from the chart. The Visit Enumeration Form was designed to facilitate organization of the chart and to list each visit (diabetes-related *or* nondiabetes-related) including date, patient's reason(s) for visit, physician diagnosis(es), location of visit (hospital, clinic, office, emergency room, etc.) and relevant comments. This

information will yield average visits per year by location of visit to assess the total impact of diabetes on the health-care delivery system.

The Visit Abstract Form was designed to obtain detailed information on the visit when diabetes was diagnosed, and prior visits where signs and symptoms of diabetes were listed in the chart before a diagnosis of diabetes was formally made. For diabetics with age at onset of diabetes less than 20, the Visit Abstract Form is filled out for each visit.

The Retrospective History Form was designed to summarize the following aspects of the patient's medical history: signs and symptoms of diabetes before diagnosis, diabetes complications, other health problems, treatment for diabetes referrals, address and name history (for record linkage), and weight history.

Experience to Date

Abstracting was begun by one full-time abstractor in Wadena, Minnesota the 18th of May, 1981. Initial impressions by the abstractor, supervisor and project epidemiologist are that the diabetic charts are very large and involved indicating frequent visits, and a probable excess of other diseases in these diabetics underscoring the fact that diabetes is a serious chronic disease with a heavy impact on the patients themselves and the medical system.

The primary finding to date is that population-based epidemiologic studies of diabetes can be conducted in Minnesota. It is expected that by the end of 1981, we will be able to produce an accurate description of the diabetic population in Wadena including incidence, prevalence, total impact on the medical system, treatment and referral patterns, proportion of diabetics found in each stratum of the medical system, and an analysis of the efficacy of hospital-based records for program evaluation.

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MINNESOTA MEDICINE Winter Covers

The cover editor would like to solicit photographs for next winter's covers concerning the possible vacation places that many persons travel to from this area. Many Minnesotans vacation out of state during the winter months including such areas as the mountains for skiing, the Caribbean, Florida, the desert states, and possibly Mexico. The editor would like to receive scenic photographs of some of these vacation areas in the hopes that MINNESOTA MEDICINE could have a winter series on some of these areas.

Rheumatology Corner

Hyperuricemia

ROGER S. COLTON, M.D.*

FIVE TO FIFTEEN percent of American adults, predominantly men, have persistently elevated serum uric acid levels (hyperuricemia). Women are more likely to develop hyperuricemia after menopause. Hyperuricemia is frequently equated and thereby mislabeled as the clinical condition, gout (Table 1). Gout is the deposition of monosodium urate in: (1) Synovium of joints (gouty arthritis), (2) skin (tophaceous gout), (3) renal medulla (gouty kidney). Uric acid renal lithiasis is also a result of hyperuricemia. Five to twenty percent of individuals with chronic hyperuricemia will have gout during their lifetime. Gouty arthritis is the most common clinical manifestation of hyperuricemia and is a rather infrequent occurrence when the number of potential patients are considered (Table 2).

More significant than the potential of gouty arthritis, hyperuricemia may be a marker for hypertension, diabetes mellitus, obesity, alcoholism, and fat transport disorders. These metabolic states may portend more significant health risks than gout. Persistent hyperuricemia warrants detailed history, physical and laboratory assessment of these factors.

The causes of hyperuricemia are classified as primary or secondary. Primary hyperuricemia is caused by over-production of uric acid in 75% of individuals. The remaining 25% have diminished renal urate excretion or combination of overproduction and under excretion. Secondary hyperuricemia is caused by overproduction from proliferation of cellular disease such as leukemias, lymphomas, polycythemia, and by rapid metabolism of skin as in psoriasis. Under-excretion of uric acid is seen in renal disease and drug induced (diuretics, low doses of salicylates) causes of secondary hyperuricemia.

Secondary causes of hyperuricemia infrequently cause gout. Drug-induced hyperuricemia is a relatively common occurrence in hospital populations (due to drugs such as diuretics and low doses of aspirin) and in the hypertensive population. Hypertensives have a propensity to hyperuricemia which is potentiated by the additive effect of hyperuricemia associated with the use of diuretics.

The first occurrence of gouty arthritis may occur in 25% of individuals without persistent hyperuricemia.

Therefore, recognition of the clinical presentation and the definitive finding of urate crystals in joint fluid is required to suspect and substantiate the diagnosis. However, it is unusual for serum uric acid to be less than 10% to 20% below normal, and repeat serum uric acid levels as an acute attack is resolving may demonstrate definite hyperuricemia. Significant hyperuricemia is usually present with recurrent attacks of gout.

Weight reduction and abstinence from alcohol may be the most efficacious prescription for reduction of hyperuricemia. Persistent and significant elevation of uric acid (Table 3) is effectively treated with drugs. Rarely is diet, excluding abstinence of alcohol, necessary. Drug therapy is recommended if: (1) a history is consistent with frequent and repeated attacks of gout, (2) after the first documented uric acid renal stone, (3) a persistently high level (40% over laboratory normal) in hypertensives or in those with a family history of gout. Individuals with hyperuricemia of a modest degree and with no previous history of complications associated with hyperuricemia are not candidates for treatment. There is no evidence that treatment of modest hyperuricemia has a protective effect against uric acid tissue deposition in asymptomatic individuals unless they are also hypertensive.

TABLE 1

- I. Gout is:
 - Gouty arthritis
 - Gouty tophi
 - Renal uric acid deposition
- II. Gout is not:
 - Hyperuricemia without arthritis, tophi, or kidney disease

TABLE 2

- Hyperuricemia is seen in 5%-15% of adults.
- 5% of hyperuricemics have gouty arthritis
 - 1% of gouty arthritics have renal stones
 - .1% of hyperuricemics have renal stones

TABLE 3

- When to treat hyperuricemia:
- 1. Persistent recurrent gouty arthritis
 - 2. After the first renal urate stone
 - 3. Hypertensive renal disease with chronic hyperuricemia greater than 40% of accepted normal
 - 4. Persistent hyperuricemia of 40% or greater in individual with family history of gout.

*Rheumatologist, St. Paul, Minnesota.

HYPERURICEMIA — COLTON

Allopurinol inhibits the formation of uric acid and is indicated in individuals with renal urate stone formation, renal impairment with persistent hyperuricemia, and in individuals who have a marked increase in renal uric acid excretion (over one gram per 24-hour period on a regular diet). One 300 mg. Allopurinol tablet daily is standard dosage; this can be increased in increments to a daily total dosage of 800 mg. if the uric acid level is not reduced to normal within a period of three months. Skin eruptions, cytopenias, hepatic toxicity, and hypersensitivity angitis have been reported with the use of this drug. Probenecid, an effective uricosuric agent, should be

avoided in the management of hyperuricemia with renal stones, renal impairment, and over-production of uric acid. Probenecid, 0.5 grams b.i.d. with a total dose of two grams per day can be given with instructions to force fluids (water intake of greater than two quarts per day).

The potential exists of provoking attacks of gouty arthritis in the first months of starting allopurinol or probenecid. Provoked gouty arthritis attacks can be prevented by the prophylactic use of Colchicine, 0.6 mg. t.i.d. orally or non-steroidal anti-inflammatory drugs such as Indomethacin, 25 mg. q.i.d. in the initial three-month period of hyperuricemic therapy.

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Elaine Larson (Mrs. Roger), presenting AMA-ERF check to Doctor Neal Gault, Dean, University of Minnesota Medical School, Minneapolis. (Photo taken by Roger K. Johnson.)

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PRECAUTIONS

General

Symptomatic relief should not delay definitive diagnoses or treatment.

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Anusol-HC is not for ophthalmic use.

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See "WARNINGS"

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Care should be taken when using the corticosteroid hydrocortisone acetate in children and infants.

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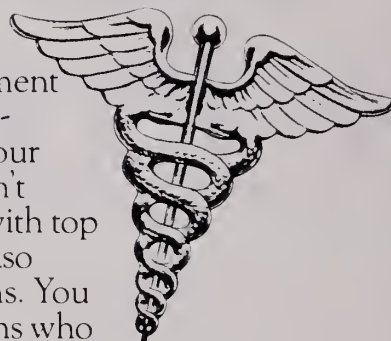
*Meeting of Am Soc Colon/Rectal Surgeons, May 1980.

**Based on total prescriptions filled for hemorrhoidal preparations during the first three quarters of 1981. The National Prescription Audit, IMS America Ltd, Sept 1981.

*1981 data from leading marketing research organization.

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Percutaneous Intraaortic Balloon Support

Repeat Insertion through the Same Site

ARLEN R. HOLTER, M.D.;* JOHN E. BASSETT, M.D.;† BRADLEY C. LIND, M.D.‡ and MARK W. SHARON, M.D.†

Percutaneous intraaortic balloon support has been used since 1978. This form of insertion and removal offers several advantages over conventional insertion. We wish to report a case involving repeat insertion through the same arterial site during two separate hospitalizations for postoperative support.

THE INTRAAORTIC BALLOON pump (IABP) has been used clinically since 1968. To date more than fifty thousand have been inserted world wide for a wide range of both prophylactic and supportive clinical situations. Up until 1978, balloon insertion required a surgical cutdown, usually on the common femoral artery, and attachment of a vascular prosthesis through which the balloon was inserted. Removal of the balloon required oversewing of a 7-10 mm. segment of graft, or if the prosthesis was excised a saphenous vein patch angioplasty was required or meticulous closure of the arteriotomy was undertaken. Regardless of the method used, repeat insertion at a later date through the same artery could not be accomplished without some degree of difficulty.

Since 1978, IABP insertion has been possible percutaneously through the use of the balloon catheter (PIABP) inserted by the Seldinger technique through a 12 French sheath.¹ This has enabled the insertion and removal of balloons by physicians without prior experience in vascular surgical techniques. We wish to report the use of percutaneous insertion for postoperative support through the same arterial site during two separate hospitalizations.

Case Report

A 46-year-old white male was admitted to Fairview Hospital, Minneapolis, on February 27, 1981 with chest pain. He had experienced atypical chest pain thought to be indigestion for ten days prior to admission. ECG changes were diagnostic of anterior wall ischemia. During hospitalization Creatine Phosphokinase (CPK) MB enzyme fractions were positive for subendocardial infarction.

Cardiac catheterization showed an enlarged left ventricle with a hypokinetic anterior wall with clot present within the ventricle. Ejection fraction was

estimated at 35% and left ventricular end-diastolic pressure was 29 mm. Hg after injection. A right dominant coronary system was present with multiple subcritical areas of stenosis and ectasia in the right coronary artery. The left main coronary was normal but the left anterior descending coronary artery showed a 90% proximal lesion with poor runoff. The circumflex coronary artery was small with 90% proximal stenosis. Following catheterization he was anticoagulated with Heparin and then switched to warfarin sodium. Following discharge he continued to experience exertional angina pectoris despite maximal medical management with Sorbitrate and Propranolol. Six weeks later he was referred for a myocardial revascularization.

Three saphenous vein bypass grafts were performed to the right, left anterior descending (LAD) and circumflex marginal arteries on April 29th at St. Mary's Hospital, Minneapolis. Hypothermic crystalloid cardioplegia and moderate systemic hypothermia to 27° centigrade were employed for myocardial protection. Aortic occlusion time was 54 minutes during performance of the distal anastomoses. Cardiopulmonary bypass was successfully discontinued without the need for pressor agents and hemodynamic status was stable during closure of the sternum. A pressure monitoring line was inserted into the right ventricular out-flow tract into the pulmonary artery for pressure monitoring. Upon arrival in the surgical intensive care unit, BP was 130/80 with a sinus rhythm of 110, pulmonary artery pressure of 30/15.

Several hours later, he developed multifocal premature ventricular contractions (PVCs) with coupling at the rate of 6-8 per minute. Suppression with Lidocaine 4 mg. per minute and Procainamide 4 mg. per minute was unsuccessful in abolishing this arrhythmia. Bretylium 2 mg. per minute was started. With the institution of Bretylium therapy he developed tachycardia to 130 per minute and became hypotensive to 70/50. With hypotension, ventricular tachycardia

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and then ventricular fibrillation ensued. Sinus rhythm was successfully restored with defibrillation. Following this countershock and the discontinuance of Bretylium his BP remained 80/50 with a pulmonary artery pressure of 40/25. An Epinephrine drip of 2 mcg. per minute was instituted. In addition, a Datascope (Percor)* 40 cc. balloon pump was easily inserted through the left common femoral artery. With this BP rose to 120/80 and pulmonary artery pressure fell to 30/15. He required balloon support for the next 24 hours and then had it successfully weaned and removed. He made a further uneventful convalescence and was discharged on the tenth postoperative day. Warfarin Sodium was restarted during this time.

Following discharge, the patient remained free of angina for approximately six weeks. At that time his Warfarin Sodium anticoagulation was discontinued and he became symptomatic shortly thereafter. A stress test was positive at two minutes by the Bruce protocol and subsequent cardiac catheterization confirmed presence of a new lesion distal to the LAD Anastomosis, despite patency of the LAD graft. He underwent repeat revascularization on July 25, 1981 at North Memorial Medical Center, Minneapolis. A single bypass graft was performed to the LAD with hypothermic crystalloid cardioplegia and hypothermia for myocardial protection. Cardiopulmonary bypass was instituted through the right common femoral artery because of extensive scarring of the ascending aorta. After bypass was discontinued the patient developed multifocal PVCs culminating in ventricular fibrillation. After restoration of sinus rhythm, a percutaneous intraaortic balloon pump (PIABP) was again inserted into the left common femoral artery. PIABP support was continued for 48 hours again after surgery. After removal on the third postoperative day a satisfactory recovery was made. He was discharged on the tenth postoperative day and remains asymptomatic at this time. A repeat stress test was negative.

Discussion

The early use of the IABP was primarily to support patients with cardiogenic shock secondary to myocardial infarction. Subsequently improved survival of

patients undergoing myocardial revascularization for unstable angina at the Massachusetts General Hospital was achieved through IABP support in both the pre and postoperative periods. Currently the IABP's role in supporting patients with low cardiac output in the immediate postoperative period is well recognized.

Since the first clinical use of the PIABP in 1978, several reports have confirmed its advantages of rapid insertion and removal. Although the incidence of both major and minor complications and the inability to advance the balloon into position in cases of diffuse atherosclerosis appears to be similar,³ it does offer several practical and technical advantages: (1) It may be inserted quickly and removed by personnel other than someone with vascular surgical competence. (2) Because no vascular prosthesis is employed the incidence of complications related to a surgical incision or the presence of a foreign body (infection, lymphocele,) are lower than by the conventional cutdown techniques.³ (3) And lastly, the same site may be used on subsequent occasions without extensive dissection and removal of graft material.

We are not aware of similar survivors after IABP support in separate hospitalizations. Although the indications for IABP support both before and after surgery have broadened, the hospital survival in such patients approximates 70%. In a series of 196 patients from the Cleveland Clinic requiring balloon support for myocardial revascularization a patient survival of 73% was achieved.⁴ The MGH series of 728 patients in whom IABP support was used had a hospital survival of 65%. In that series, McEnany reported 19 patients as having received two IABPs, 10 during the same hospitalization and 9 during a subsequent hospitalization.⁵ Three non-survivors had repeat insertions through the same femoral artery by the classical cutdown technique.⁶ In the largest published series of PIABP insertions from New York Hospital,³ none of the 89 patients required repeat insertion. Thus our patient represents the first survivor following PIABP support through the same femoral artery on separate hospitalizations.

In conclusion, we feel that the PIABP offers an added dimension over the conventional IABP in the case of the critically ill heart patient.

*Type S, Datascope Corporation, Paramus, New Jersey.

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Geriatric Medicine

Essentials of Geriatric Management

JAMES J. PATTEE, M.D.*

THE HISTORY OF MEDICINE in the United States documents the development of new knowledge and skills in the medical sciences. With increased knowledge and skills, a specialty or subspecialty that claims this knowledge and skill as its domain generally has evolved. Geriatrics is a contemporary example of this. Although a special committee of the Institute of Medicine¹ is opposed to the development of geriatrics as a unique medical specialty, there is no reason to defy medical history and deny specialty status to this area of expertise.

Geriatric medicine comprises a body of unique knowledge and skills based on the following factors which describe aging persons and a health care system attuned to their needs:

- There is a gradual decline of organ function.
- Older individuals have multiple diseases.
- Older individuals receive multiple therapies.
- Multiple therapies require a multidisciplinary approach to appropriate care.
- Treatment decisions for geriatric patients must take into account the treatment effects on the patient's functioning and quality of life.
- The delivery system must render health care services in multiple sites, outside the traditional acute care setting.

Decline of Organ Function

Aging begins at conception. From that moment, life follows an orderly progression of events until death. True, not all the factors that influence this progression are understood. Some are: the individual's genetic time clock, trauma, psychological stress, infection and lifestyle, including nutrition and activity.

Leonard Hayflick² has demonstrated cultured cells replicate themselves 50 times and die. Cells that live longer have the characteristics of cancer cells. Differences can be seen before then: young fibroblasts have a different appearance from fibroblasts that have replicated 45 times. Further, Hayflick's research demonstrates the time clock for this characteristic lies in the nucleus. A young nucleus (five replications old)

placed in an old cell (40 replications old) will continue to replicate until the nucleus has reproduced itself a total of 50 times. Thus, aging occurs at the basic unit of life, the cell.

"Diminished capability" describes many of the physical signs of human aging such as a gradual loss of neurons in the central nervous system, a gradual loss of special senses: taste, hearing, and vision. Lung elasticity, heart function, and hepatic enzyme activity decline; the kidneys lose nephrons; and the immune system becomes less efficient. In addition, the proportion of fat to lean in the body mass shifts — in favor of fat.

With this gradual decline in organ function, the organism has less reserve to mobilize its resources when confronted with changes in the internal or external environment. In short, older patients are in delicate equilibrium. An acute pneumonic infection, or a hip fracture, can precipitate confusion in many elderly patients because their ability to adjust to rapid changes is markedly reduced. The heart may begin to fail. Immobilization could result in constipation, urinary retention, decubitus ulcers, loss of joint mobility, and loss of muscle strength. Relatively benign infections may pose major challenges to the weakening systems of older adults and will often precipitate catastrophes.

The fourth leading cause of death in the elderly is accidents.³ Of the numerous types of accidents, falls are the most common in the 75-and-over age group. Only 17% of falls are brought to the attention of the health care system.⁴

Multiple Diseases

All organs age. Genetic makeup, trauma, infection, and lifestyle variables such as exercise or nutrition may age one organ slower or faster than others. Often older patients have multiple organ disease. An older patient with disease of one organ and impaired functioning of other organs can challenge the finest minds in medicine.

Active rehabilitation of a diseased heart in a younger person is quite different from a diseased heart in an

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older person who may also have decreased joint mobility, muscle weakness, and little motivation.

Not only the number of diseases, but also their manifestation differs from the younger to the older patients. For instance, the older patient with a urinary infection or pneumonia may be afebrile; or have an acute myocardial infarction without pain; or have hyper- or hypothyroid disease without any of the classical symptoms.

Multiple Therapies

Treating older patients is like playing chess: for every move of the therapist, there is a patient's counter response, not always desired or anticipated. We are only now beginning to understand disease-disease, drug-drug, and drug-disease interactions. Since older patients generally have more than one organ disease, any approach to treatment must consider its effects on the other organ functions and be systematically assessed.

Dr. Ian Lawson⁵ makes a plea for physicians to know the pharmacokinetics of every drug used. How is it distributed in the body? How is it metabolized? What are the products of metabolism? Do these metabolites have an active pharmacological effect, desirable or undesirable? How rapidly is the drug excreted? With these facts in mind, the half-life of the drug, the half-life of its metabolites, and the likely duration of the pharmacological effect can be estimated.

Although such information is particularly important when treating the older patient, many clinicians know little about the half-life of drugs and their metabolites. This information is not readily available and can only be found by diligent inquiry. Despite these difficulties, appropriate drug therapy for the older adult requires the clinician to:

- Know the pharmacokinetics of the drugs prescribed.
- Exercise caution in treating symptoms.
- Use drugs in reduced dosage.
- Change dosages at intervals of five times the half-life.
- Establish criteria for discontinuing a drug.

Drugs are only one of many treatment modalities for older patients with multiple diseases. Physical medicine and rehabilitation have much to offer. Professionals in the areas of nutrition, social work and psychology have a role in caring for the older patient. The integration of these assessment skills and treatment modalities of a variety of helping professions is the opportunity of geriatric medicine in the 1980s.

Concerns about the patient's quality of life and treatment costs require geriatric health care — and

health care generally — involve the patient and family in self-care and self-help programs. Special interest groups for alcoholism, strokes, Parkinson's disease, Alzheimer's disease, cancer, arthritis, etc., offer psychological support and ways of learning coping skills to both patient and family. Physicians have a responsibility to encourage, support, and utilize these groups. In the past, physicians have been minimally involved with and supportive of self-care and self-help groups.⁶

Multidisciplinary Efforts

Multiple diseases of older patients require multiple therapies and an integrated, multidisciplinary approach to care. This task is best carried out by a primary care physician. (We are talking about the need of a leader to orchestrate the care of the elderly.) The Institute of Medicine's definition of primary care characterizes the type of care needed. It is defined as being: accessible, comprehensive, coordinated, continuous and accountable.

The appropriate use of medical specialists and subspecialists and other health care disciplines are required to provide older patients comprehensive care. Such collaboration may create problems with coordination if someone isn't designated to do so.

Patient's Functioning and Quality of Life

Physicians have been well prepared to care for acute episodic illness, since their orientation typically has been towards patients with acute health problems. They have been less well prepared to deal with chronic illness, where the goal of treatment is to maximize or maintain the patient's usual functioning. The first question when initiating an assessment or treatment should be, "How will this affect the function of my patient?"

The nursing profession is extremely sensitive to the patient's function. The amount of nursing time and skills needed to care for patients in nursing is based, not upon the diagnosis, but upon the patient's ability to function in the environment. Physicians need to address not only the diagnosis, but also the level of functioning of the older patients, and the appropriate care to achieve such goals.

Patients are interested in how their disease or treatment will affect their lifestyle, their quality of life. Flanagan has identified fifteen components in the quality of life.⁸

Quality-of-Life Components

Physical and Material Well-Being

1. Material well-being and financial security
2. Health and personal safety

Relations with Other People

3. Relations with spouse or a significant other
4. Having and raising children
5. Relations with friends
6. Relations with relatives

Social, Community and Civic Activities

7. Activities relating to helping or encouraging other people
8. Activities relating to local and national governments

Personal Development and Fulfillment

9. Intellectual development
10. Personal understanding and planning (personal growth)
11. Occupational role
12. Creativity and personal development

Recreation

13. Socializing
14. Passive and observational recreation
15. Active and participatory recreation

Happiness is:

1. Something to do
2. Something to love
3. Something to look forward to

Health and personal safety, as you will note, are just one of the fifteen components describing quality of life. Therefore, when physicians treat geriatric patients, "How will therapy affect this patient's ability to function in the environment as before?" must be considered.

How will therapy affect this patient's quality of life?

Health Care Delivery Alternatives

The need for nursing homes has greatly increased over the past 10-15 years. The nursing home, however, cannot possibly meet all the needs of the aging

population. The health care delivery system at the present time is oriented towards delivering medical services in doctors' offices, in hospitals, and to some extent in nursing homes. This must be adjusted at the community level.

Physicians who care for the older handicapped adult can provide education and support more economically if they will identify alternatives to the present system. The following questions open the door to alternatives:

- What health care services are needed?
- Where can this service be provided effectively and efficiently?
- Who can provide this service?

A family member or health aide with professional guidance and support may offer viable alternatives to institutional care, either hospital or nursing home. By identifying and using self-care and self-help groups, physicians, can share the load in providing psychological support for patients and their families. Self-help groups are also prepared to educate and train family members to provide health care services.

Health care is a continuum. The type of health care service and the site are facts of this continuum. Scientific and technological advances have made many things possible, but merely because something's possible, that does not necessarily mean it is reasonable. Reasonableness must be determined by considering the impact of care on the patient's quality of life and the fiscal resources available.

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7. A Manpower Policy for Primary Health Care, Institute of Medicine. National Academy of Sciences, Washington, D.C., May 1978.
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Lake Okoboji Infectious Disease Symposium Friday and Saturday, July 30 and 31, 1982

A continuing medical education offering on the shores of beautiful Lake Okoboji.

To register, or for further information, contact: Marge Adey, Center for Continuing Education, University of Nebraska Medical Center, 42nd and Dewey, Omaha, Nebraska 68105. Phone: 402-559-4152.

Cover Photograph

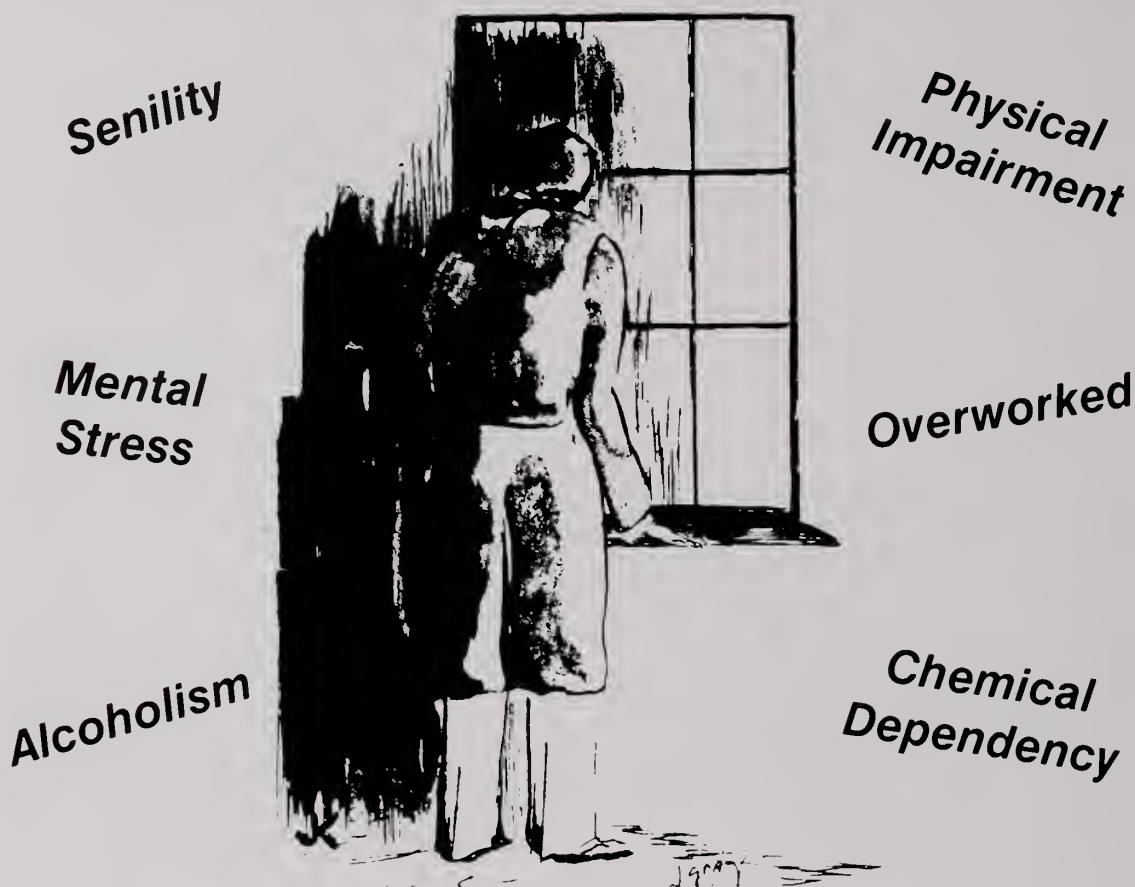
"Blueberry Harvest"

Dr. Reinhold Goehl's covers continue to grace the covers of MINNESOTA MEDICINE. This month's cover was taken near his cabin in Bemidji during the summer, two years ago.

He used a Nikon camera with a 55 mm Macro lens and Ektachrome 64 film.

He's an obstetrician-gynecologist practicing in the suburbs of Minneapolis and was the winner of MINNESOTA MEDICINE's best cover award in 1980.

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Minnesota Medical Association

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George C. Lohmer, Jr., Director, Department of Health Planning

Kathy Meyerle, Director, Department of Legislative Affairs/Legal Counsel

Department of Health Planning

House of Representatives Considers Health Planning Proposals

Prospects for Congressional passage of a health planning bill have improved substantially with a recent bi-partisan compromise. Major participants in this discussion in the House of Representatives are: Henry Waxman (D-California), Richard Shelby (D-Alabama), John Dingell (D-Michigan), James Broyhill (R-North Carolina), and Edward Madigan (R-Illinois).

Provisions of what is called the "Waxman-Madigan compromise" proposal include two authorizations of \$32 million each for health planning: one in the form of federal block grants to the states, and the other in the form of federal matching grants to the states, for pass-through to local planning agencies. No match would be required for local level agencies in FY '83, and 15% match would be required in FY '84.

The governors of states choosing the local level option would be responsible for the designation of agencies, their areas, procedures and functions (to include at minimum: plan development, plan implementation, and public information). Local planning agencies would be excluded from conducting local level CON review, but could participate in state CON review at the governor's option. The boards of these local, private non-profit agencies would be consumer dominated.

The Waxman-Madigan compromise also recommends a number of changes to Certificate of Need. CON thresholds would be \$5 million for capital expenditures and \$1 million for health services, with the option for states to set these levels as low as \$1 million and \$500,000 respectively. Projects not acted upon by the state within 120 business days would be deemed approved. Also under this proposal the current regulations pertaining to the health planning program would remain in effect until the implementing regulations for the new legislation are issued.

The next major battle for revision and extension of the health planning program will be fought on the House floor. Without Congressional action, funding for health planning will terminate September 30, 1982.

Department of Legislative Affairs

"Every government degenerates when trusted to the rulers of the people alone. The people themselves, therefore, are its only safe depositories." (Thomas Jefferson, notes on the state of Virginia, 1784-1785).

In fashioning our governmental system, Thomas Jefferson lived up to his ideal of giving citizens the power to govern rather than rulers. But in order to prevent the degeneration of representative democracy, citizens must participate in the political process.

On June 1, 1982 the East Central Medical Society heard Representative John Clawson (DFL-Center City) outline a number of ways in which physicians can become more involved in the political process. The best time to become involved in Minnesota's political process is at the precinct caucuses on the fourth Tuesday of February in every even-numbered year. The local party caucus is the foundation upon which the rest of our process is built. Physician attendance and participation in the precinct caucus are an essential first step toward further involvement in politics.

Clawson explained that the precinct caucus is the beginning of the convention process which culminates with the state conventions for each party. Legislative district conventions, congressional conventions, and county conventions all meet to complete the process of endorsing candidates for the elections. Once candidates have been selected participation can always come in the form of campaign contributions. However, the importance of working on a campaign should never be underestimated. A myriad of tasks from door knocking to envelope stuffing confront every candidate statewide. A few hours' time helping a candidate is often more valuable than money.

Before the election get to know your local candidates on a first-name basis then follow-up after the election. It only makes sense if they know you, they will be more likely to return your phone calls and answer your letters than if you are a stranger. Once the legislature is in session, call and write your legislators to inform them of your opinions on matters coming before them. Phone calls and letters do not need to be lengthy, but they do not have any effect unless they are made or written.

All of these methods of participation require time and effort. However, representative democracy is never a final achievement. It requires unceasing efforts and constant vigilance. These are the ends which we all must work toward.

Minnesota Medical Association

Annual Meeting
May 26-28, 1982



MINNESOTA MEDICINE 1982 award winners. (Left to right) Donald A. Scholz, M.D. (best cover) Mark F. Gobel, B.A. and Fredarick L. Gobel, M.D. (best manuscript); Richard L. Reece, M.D. (Editor-in-Chief); Richard N. Hadley, M.D. (best cover). (Photo by Roger K. Johnson.)



Harold W. Brunn, J.D., MMA Executive Vice President, speaking before the House of Delegates after being honored for 30 years of skilled leadership, unsurpassed loyalty, honesty and integrity. (Photo by Roger K. Johnson)



Robert T. Kelly, M.D., AMA Trustee, addressing the MMA House of Delegates. (Photo by Roger K. Johnson.)

MINNESOTA MEDICAL ASSOCIATION



Donald C. Bell, M.D., newly elected President-Elect, acceptance speech before the House of Delegates. (Photo by Roger K. Johnson)



Iris Larson (Mrs. Gerald), addressing the MMA House of Delegates. Pat Shelander (Mrs. Marcus) is holding the MMA Auxiliary Quilt which was raffled off during the Annual Meeting (Mary Eustermann (Mrs. John) of Mankato, was the recipient. Over \$1200 was raised for AMA-ERF through the sale of chances on the quilt. (Photo taken by Roger K. Johnson.)



Harold W. Brunn and Carl G. Gustafson sign an agreement between the Minnesota Medical Association and the Foundation for Health Care Evaluation to study physician perceptions of medical manpower needs in Minnesota. (Photo by Roger K. Johnson.)

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program: Primary sponsor: Location: Contact person.

July, 1982

9-10 Malnutrition: The Clinician's Role (Women in Medicine Conference); U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21 Orthopedics: Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

August, 1982

17 Ob/Gyn; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

25 Advanced Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

September, 1982

1-3 Annual Ob-Gyn Seminar; U of M Medical School; Hyatt Regency, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

10-11 Controversies in Medicine; St. Louis Park Medical Center; SLPAC; CONTACT Elaine Anderson, SLPAC, 5000 West 39th St., Mpls., MN 55416, 612/927-3350.

13-17 Skeletal Radiology (Annual Radiology course); U of M Medical School; West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

15 Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

15-17 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health and Safety; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

17 & 18 Current Clinical Cardiology; United Hospitals; Radisson Plaza, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith, St. Paul, MN 55102, 612/298-8558.

23-25 Trauma Seminar; U of M Medical School; Hennepin County Medical Center; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

24 Annual Meeting; Northwestern Pediatric Society; Chanhassen Dinner Theatre; CONTACT Stephen Boros, M.D., 612/298-8864.

29-30 Cardiovascular Disease — 1982; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-October 2 Comprehensive Review of Infectious Diseases; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

October, 1982

6-8 Internal Medicine Review; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7-8 Adolescent Medicine and Health Care; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9 Current Trends in Ophthalmology — 6th Annual; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700, ext. 1117.

14-15 Cancer Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

15 Update on Poisoning; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

18 & 20 Basic Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Emergency Medicine; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

20-22 Clinical Microbiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

20-23 Principles of Colon and Rectal Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 Emergency Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; Rodeway Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

24 ENT for Primary Care Physicians; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

25-27 Clinical Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-30 Clinical Laboratory Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

November, 1982

4-5 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center, Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center, NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

December, 1982

1-2 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

7 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

9-11 Coronary Heart Disease: A Comprehensive Review of Principles and Practice; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13 & 15 Basic Cardiac Life Support Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

14 Oncology; Central Mesabi Medical Center, Hibbing; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

For further information on *future* CME programs, contact Department of CME & Program Services, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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Please change your records to list our address as 2221 University Avenue SE, Suite 400, Minneapolis, Minnesota 55414.

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Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

WANTED: Board Certified/Eligible physicians under age 58 in OBG, General/Orthopedic Surgery, ENT, Urology, Ophthalmology, Dermatology, Oncology, Rheumatology, and Hematology to relocate with U.S. Air Force group-type practice. Full range, high-quality benefits. Replies to Gene Gunderson, 2829 University Ave. SE, Suite 444, Minneapolis, MN 55414 (612) 331-8216.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

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specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

SEVEN COUNTY FAMILY practice group seeks associate to replace relocating member. Excellent local hospital. Proximity to Twin Cities. Salary with partnership after one year. Call J. R. Michell, M.D. or Gloria Vierling, Business Manager, Sundance Medical Clinic, Shakopee, MN 612-445-6440.

FAMILY PRACTICE OPPORTUNITY — New full-service clinic facility opening July in Eagle Bend, Minnesota. Attractive income guarantee and benefit package. Join existing two-man corporation after first year. JCAH 32 bed full service hospital, with CAP Lab, Radiology, Surgery, ER, operated by progressive investor-owned multi-hospital corporation. Also excellent school facilities. Call or write Gary Greenquist, St. John's Hospital, Browerville, Minnesota (612) 594-2204 or Dr. Russell Brown, Todd County Medical Center, (612) 594-2231.

WANTED: F.P./G.P. for northern Minnesota community to work with another physician. Great opportunity with a complete package to offer. Excellent area for outdoors activity and raising a family. Call collect 281-253-2131.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

Classified Advertisements

FULL OR PART-TIME emergency room physicians. Eastern Minnesota and Western Wisconsin. \$44,000 to \$74,000 for 2 days plus paid malpractice. Call toll free: 1-800-537-3355.

PEDIATRICIAN — BC/BE to join a 12 doctor multi-specialty group, southern Minnesota community of 12,000 (Trade area 70,000). Fairmont is a progressive city with excellent schools and recreational areas around a chain of five lakes. First year salary guaranteed with full partnership after one year. Contact Don Grandgenett, Administrator, Fairmont Medical Clinic, P.A., Fairmont, MN 56031. (507) 238-4263.

MEDICAL STUDENT going into fourth year in September 1982, North American studying in Mexico, urgently seeks guidance and financial support until she obtains her license in the U.S. In exchange for each year of support, she agrees to serve for a year in sponsor organization. Advertiser speaks Spanish, German, Polish, Italian and other related languages besides English. Contact MINNESOTA MEDICINE (729), 2221 University Avenue SE, Suite 400, Minneapolis 55414.

GENERAL SURGEON. Enjoy the security of group practice with the freedom of independent practice. If you are a Board Certified or Board Eligible General Surgeon, we have an interesting opportunity for you. A General Surgeon is needed immediately to form an independent practice in a very desirable Northern Wisconsin community with a drawing population of 100,000. All major specialists available for consultation. A growing community hospital with 240 beds with excellent medical and surgical subspecialty representation. Opportunities for endoscopy and peripheral vascular surgery also exist. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 55401.

WANTED: POSITION as Operating Room Assistant, for a Board Eligible General Surgeon, well trained in all fields of Surgery at a large East Coast Medical School. Please contact G. Surya, 6313, Irving Avenue South, Richfield, MN, 55423 or Call: 612-869-9041.

OFFICE SPACE AVAILABLE — Physician in Professional building, 555 Park Street, St. Paul, Minnesota 55103, wishes to share the office facilities with another physician for the purpose of sharing overhead expense — call — (612) 292-0037.

COMMUNITY PSYCHIATRIST: Excellent opportunity for diversified practice with stable and innovative mental health organization. Current staff includes one full time and two part time experienced psychiatrists as well as more than 65 other direct care and support staff. Programs include inpatient, partial care, outpatient, special services for children, the elderly, and the chronically mentally ill as well as alcohol and drug dependency, and a very interesting comprehensive pre-paid program with a health maintenance organization. The Center has strong public and private support and serves an area of about 100,000 people. The area has extraordinary four-season recreational opportunities, yet is close to cultural and population centers. Current salary range is \$50,000-65,000 with appointment above minimum possible depending on qualifications. Included also is an attractive fringe package including interview expenses and a generous moving allowance. If interested, please contact Miller A. Friesen, Executive Director, Range Mental Health Center, Box 1188, Virginia, MN 55792 or call (collect) 218-749-2881. AA/EOE

FAMILY PHYSICIAN to join group of six Board Certified Family Practitioners and one Board Certified General Surgeon. Liberal vacation and educational allowances. Competitive salary first year with incentive bonus, and full membership after one year. Blue Earth is a farming town of 4000 in Southern Minnesota with a drawing area of 25,000. 35 bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013. Phone: (507) 526-7371, Personal Phone: (507) 526-3177, Or Contact: Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call J.P. Merickel, M.D., 612-231-5000.

APPLICATIONS WELCOMED from board-certified general radiologists with special interest in nuclear medicine at Saint Paul-Ramsey Medical Center. U of M Teaching appointment. Salary negotiable. Start immediately. Contact Philippe L'Heureux, M.D., (612) 221-3797. (continued to page 450)

Classified Advertisements

(continued from page 449)

WANTED: Internist to join 7 family practice physicians and 2 general surgeons. Young physician group, average age 36. 2-year-old clinic building. Serving a trade area of approximately 25,000. Located 90 miles east of Fargo in the heart of Minnesota's vacation area. Next to a 50-bed hospital with a 5-bed CCU-ICU. Excellent consolidated school system. Most religious denominations represented in the area. Contact William Pauley, Park Rapids-Walker Clinics, Ltd., Box 391, Park Rapids, MN 56470 or telephone 218-732-3325.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

FIFTY PHYSICIAN MULTI-SPECIALTY clinic in west central Wisconsin wants neonatologist, neurosurgeon, orthopedic surgeon, and otolaryngologist. Excellent cultural, educational, and recreational facilities. 90 miles from Minneapolis. Please contact James R. Jepson, Administrator, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5266.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

WANTED: Family practitioner, internist, OB-GYN to join multi-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

MINNESOTA, St. Cloud: Opening for full-time emergency physician to join growing private group. Consider only residency trained or ABEM Credential Eligible physician. Fee for service corporation, excellent salary and benefits. 500 bed hospital serving large area in Central Minnesota. Paramedic service established. ER facility being enlarged to handle regional resource and trauma status. Rapidly growing area — three major colleges, excellent schools, good hunting/fishing. One hour from Minneapolis-St. Paul, yet all the benefits of smaller town living. Contact D. L. Frederickson, M.D., Emergency Medical Director, St. Cloud Hospital, St. Cloud, MN 56301 (612) 255-5656.

ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

CLINIC PRACTICE FOR SALE — St. Paul Industrial and Gen. Surgery. Many years estab practice — former Emerson Clinic — Will introduce buyer to Ins firms, Indust. plants, Bargeline operators plus many private pts including 3rd generation families. Complete office equip, supplies, files, patient records, extensive P.T. equip, x-ray, lab & pharm. Newly decorated & carpeted waiting room, 6 rooms including emerg. room. Modest down payment — long term financing 10% int. E. C. Emerson, M.D. 806 E. 7th St., St. Paul, Mn. 55106 — 612-776-2744.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

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FAMILY PRACTITIONER wanted to join (4) Family Physician and (2) Internist group in western Minneapolis suburb, near Lake Minnetonka. Prefer board certified or eligible applicants. Send references and curriculum vitae to Diane Theis, Clinic Manager, Mound Medical Clinic, Ltd., 2208 Commerce Blvd., Mound, Minn. 55364.

FAMILY PRACTITIONERS AND INTERNISTS — 40 bed hospital on the shores of Lake Superior in the Upper Peninsula of Michigan seeks additional staff in Family Practice and Internal Medicine. Year round recreational area with opportunity for challenging medical practice. Office building, staff and equipment negotiable. Contact William Hermann, Executive Vice President, Munising Memorial Hospital, Route 1, Box 501, Munising, Michigan 49862.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

LOCUM TENEN SERVICES — If you need temporary coverage or wish work providing coverage in primary care, contact: INTERHEALTH, 5695 Merry Lane, Excelsior, MN 55331. 612/474-4372

MINNESOTA, DULUTH: Emergency Physician wanted to fill vacancy in St. Luke's Hospital, a 400-bed hospital, EMS Regional Trauma Center, with 23,000 annual ED volume. Fee for service corporation with negotiable 1st year salary and then full partnership. Prefer physician ABEM certified or eligible with interest in teaching in local ATLS, ACLS and FP residency. Send CV to Physicians Emergency Service, Ltd. 915 E. 1st St. Duluth, MN. 55805. (218) 726-5212.

FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D. or Albert M. Sheldon, III, M.D., Winsted Clinic P.A., Winsted, MN 55395 1-612-485-4151.

WANTED: FAMILY PHYSICIAN, Board certified or eligible, to help solo physician in South Minneapolis do full time family practice. First year salary leading to full partnership. Part time work available. Write: Minnesota Medicine-727 2221 University Avenue So. E. #400, Minneapolis, MN 55414.

FAMILY PRACTICE PHYSICIAN/ or PRIMARY CARE ORIENTED INTERNIST — To join two family practice physicians and a Board certified Surgeon in a group practice. Located in a Community of 2,500 in Southwest Minnesota. This Medical Clinic is supported by a modern 30 bed acute care Hospital and 138 bed skilled long term care facility. Guaranteed first year income, will pay travel expenses for interview. Interested Physicians send curriculum vitae to William Wilson, Administrator, Springfield Community Hospital, P.O. Box 146, Springfield, Minnesota 56087 or call collect (507) 723-4215 for more information.

INTERNAL MEDICINE: Ten member primary care group is seeking 2 Internists to join us now. Excellent social, educational, and recreational area, with modern expanding medical facilities. Salary guarantee first year. Contact: David Hellstern, Clinic Administrator, Alexandria Clinic, P.A., Alexandria, MN 56308. (612) 763-5123.

(continued to page 452)

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(continued from page 451)

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

FAMILY PHYSICIAN SW Minnesota rural primary care group (8 FP, 2 Surgeons, 1 Pediatrician, 1 Internist) in agricultural-commercial-university town of 11,000 needs BE/BC FP to maintain and develop patient-oriented group practice. Recently completed hospital and clinic share facilities in medical complex. Usual Chamber of Commerce Claims nearly true here! C. P. Martin, M.D., Doctors' Plaza, Marshall, MN 56258 #(507) 532-9631.

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Bactrim™

trimethoprim and sulfamethoxazole/Roche)

succeeds

Bactrim is useful for the following infections when due to susceptible strains of indicated organisms. See the indications section for a summary of product information):

Expanding its usefulness in antimicrobial therapy



in recurrent UTI...
a continuing record of high clinical effectiveness against common uropathogens

in acute otitis media in children...
effective against both major otic pathogens...with b.i.d. convenience

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faster relief of diarrhea than with ampicillin²

BACTRIM™ (trimethoprim and sulfamethoxazole/Roche)
Before prescribing, please consult complete product information, a summary of which follows:

Indications and Use: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL

PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function.

Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. **Blood dyscrasias:** Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. **Allergic reactions:** Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. **Gastrointestinal reactions:** Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. **CNS reactions:**

Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. **Miscellaneous reactions:** Drug fever, chills, toxic nephrosis with oliguria and anuria, periarthritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment. Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

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PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: Double Strength (DS) tablets, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100, Tel-E-Dose® packages of 100, Prescription Paks of 20 and 28 tablets, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose® packages of 100, Prescription Paks of 40. Pediatric Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry flavored—bottles of 100 ml and 16 oz (1 pint). Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).



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in recurrent urinary tract infection

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Bactrim continues to demonstrate high clinical effectiveness in recurrent urinary tract infections. Bactrim reaches effective levels in urine, serum, and renal tissue¹...the trimethoprim component diffuses into vaginal secretions in bactericidal concentrations¹... and in the fecal flora, Bactrim effectively suppresses Enterobacteriaceae^{1,2} with little resulting emergence of resistant organisms.

1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

BactrimTM DS

160 mg trimethoprim and 800 mg sulfamethoxazole

DOUBLE STRENGTH TABLETS

maximizes results with B.I.D. convenience



* due to susceptible strains of indicated organisms

Please see previous page for summary of product information

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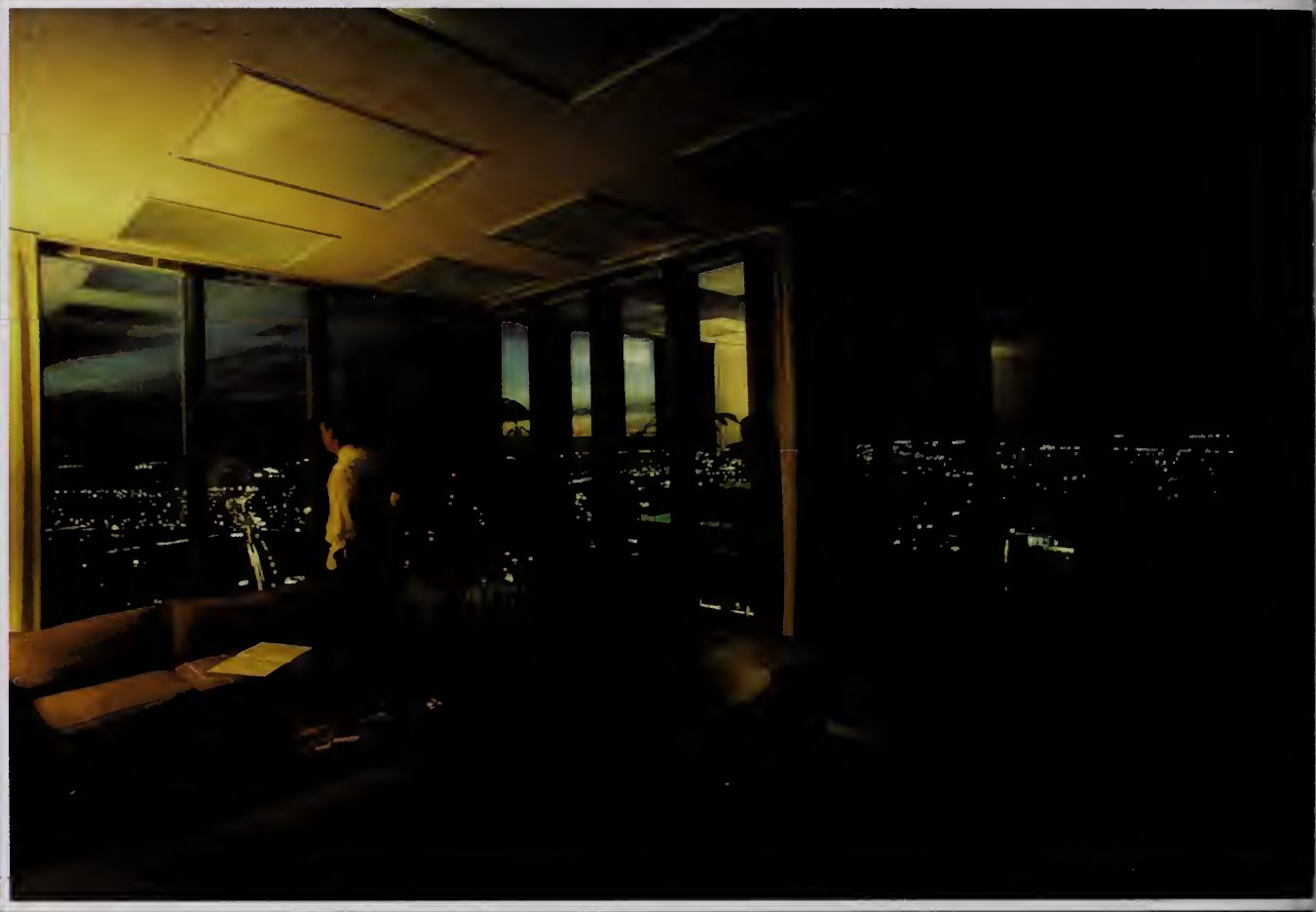
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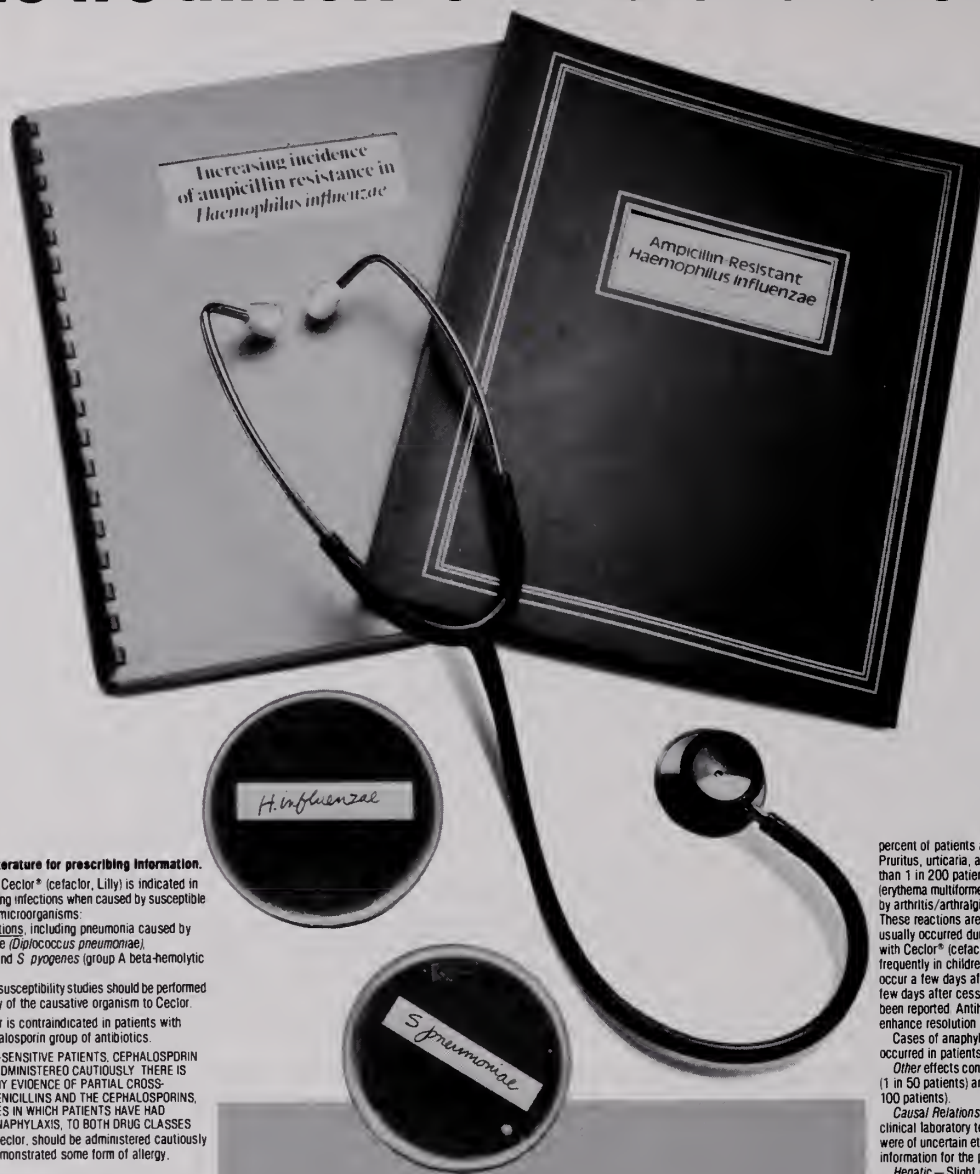
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An added complication... in the treatment of bacterial bronchitis*



Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Cefclor® (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

Contraindication: Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Precautions: If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest¹ tablets but not with Tes-Tape² (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy: Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy: Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefclor.

Hypersensitivity reactions have been reported in about 1.5

Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefclor.¹⁻⁶

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.⁷

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percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefclor® (cefclor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). 1002281

*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630

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President's Letter



Professional Liability Up-Date

In the mid 1970s, physicians in the United States and Minnesota faced a malpractice crisis. Ever increasing premiums and possible loss of insurance carriers prompted action by your Association. In 1976, the MMA House of Delegates authorized immediate exploration of options including ongoing dialogue with the St. Paul Companies and the possible formation of a physician-owned captive company. The MMA authorized its Committee on Professional Liability Insurance to hire a third party insurance consultant.

As a result of hours of deliberation and a consensus derived from this, your House of Delegates instructed the MMA Board of Trustees in May, 1979, to proceed to implement a physician-owned captive insurance company. Speaking as chairman of the Ad Hoc Committee to develop this physician-owned company, Dr. Robert Flom recommended implementation to take place in the fall of 1980. The Minnesota Medical Insurance Exchange (MMIE) became operational on October 15, 1980 with some 1300 physician policy holders.

Following the initial organizational drive in October, 1980, the membership has steadily increased to 1900 members.

A Data System Program is being formalized at this time, and the information obtained from this will provide a wealth of data for underwriting, risk management, and claims.

The North Dakota Medical Association has approached MMIE with the thought of providing professional liability insurance for its physicians. Should this venture materialize, it would greatly strengthen our captive company.

Nationally there are 29 physician-owned, medical society sponsored liability companies. Over 40% of the eligible physicians are presently covered by these physician-owned companies. While experience varies from state to state, some general observations can be made. There certainly appears to be an increase in incidence and severity of malpractice claims. In the early 1980s premiums are again rapidly increasing, and it would appear that insurance carriers are back in

the market. One very interesting new experience is that plaintiffs' attorneys are emphasizing the warranty (guarantee) concept. This implies that if results are not perfect, a breach of warranty exists. The seriousness of this new approach is that the statute of limitations for a breach of warranty is four years as opposed to two years for professional liability. Achievable legislative changes appear to offer little assistance to improve this troubled area. This may be because legislative reform requires a very broad base of support from labor, industry, the public, to mention a few.

Few physicians have any basic information about the nature of insurance, for it interferes with our busy medical lives which require concentration. Establishing our own insurance company has made us more conscious of what we can do to avoid malpractice cases. We are aware of more informed consent, of daily adequate surgeon's notes, of the need for appropriate consultation, and of the need of adequate indications and workup for surgery. Perhaps the most important thing is that we become aware of the need of a more personal physician-patient rapport than in the past.

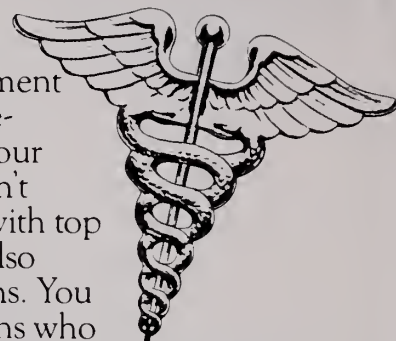
So it would appear that the MMIE is a cautious, growing company. It is felt that the malpractice premiums have been reduced 20% since the inception of our company. More importantly, the arena of competition has lowered the rates for our rival Minnesota company. In effect MMIE has benefitted all physicians in Minnesota, whether they joined it or not. Its strength lies in physician ownership and control. Many years of work by key individuals went into the formation of this company. We physicians are indebted to this small group for their selfless dedication.

There is still room in this your company for those of you who have not joined.

Severin H. Koop, M.D.
President
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Editor's Notebook

Traveling in Search of a Health System

"In the early days of the Mayo Clinic it was the custom that the staff members devote three weeks in any year to visiting other hospitals and laboratories and they report on return to their colleagues in the clinic what they had seen. One other stipulation indicates the sagacity of the brothers Mayo; those three weeks of scouting were not regarded as a substitute for vacation. The scouting was to be done when the traveler was prepared for the hard work ahead. Most people think of travel as mere pleasure. Maybe that is why we are so reluctant to realize that serious travel is hard work."

Alan Gregg, M.D., "Travel and Its Meaning,"
Scientific Monthly, March, 1950

I recently returned from a three week trip to Egypt, Israel, and Switzerland — a study in contrasting health systems and societies.

Contrasts

Egypt is a third-world nation fighting a rear guard action against schistosomiasis, hookworm infestation, and an exploding population; Israel is an embattled Western democracy combating Palestinians, nervous exhaustion, and roaring inflation; and Switzerland is a cozy country with skilled physicians, superb health care facilities, and a restless youth demanding relief from the status quo.

A Word About Israel

Before I get to the health conditions of the three countries, a special word about Israel. We were in Israel just before she invaded Lebanon. Truck convoys carrying tanks and other heavy weapons clogged the roads heading north to Lebanon. It was apparent something big was in the air.

Two things hit me about Israel: (1) the poise, alertness, and professional polish of her troops; and (2) the siege-like mentality and intensity of her civilians. I don't think I'm overstating these impressions. The Israeli army, after all, has more combat experience than any other military force in the world. And here is what Sal Bellow, the American Jewish novelist and Nobel laureate, has to say about the mood of the citizenry:¹

"Certain oddities about Israel: Because people think so hard here, and because of the length and depth of their history, this sliver of a country sometimes seems quite large . . . No one is at ease in Zion. No one can be. The world crisis is added to the crisis of state, and both are added to the problems of domestic life. It is increasingly difficult to earn adequate wages, since from the first Israel adopted the living standards of the West. Taxes are steep and still rising, and the Israel pound is dropping."

And these are Bellow's prophetic words on the Lebanese situation, written in 1976:

"No one can know what the Lebanese casualty figures are. Would forty thousand dead appall us more than thirty thousand? One can only wonder how all this killing is registered in the mind and spirit of the race . . . But the eagerness to kill for political ends — or to justify killing by such ends — is as keen now as it ever was."

Health Conditions

Enough comment on nonhealth matters, now for a few facts on what the traveler needs to know.²

In Egypt, don't drink the water if you want to avoid "Mummy Tummy" — the Egyptian equivalent of Montezuma's Revenge; stay out of the sun or wear protective clothing; mind your steps as you go on your monumental tours (after his tenth temple, one weary physician remarked to me: "My feet are in shreds, and my mind is in ruins."); mount pyramid steps with caution (this stress test has brought out underlying angina in more than one traveler);

and, if you get sick, call the hotel physician, who will speak English.

In Israel, keep in mind the quality of medicine is good to excellent; drink the water to your heart's content; enjoy the native wine; and, if you have an accident or serious illness, either call the M.D.A. (Magen David Adom), the equivalent of our Red Cross, which offers a 24-hour ambulance service, or go directly to the emergency room of a government or sponsored nonprofit hospital (most private physicians do not have admitting privileges to hospitals which are staffed by hospital-based specialists).

In Switzerland, don't fret about the quality of care — it is superb. But remember, Switzerland is the most affluent country in the world (the United States ranks tenth), and its health care costs are commensurate. Local medical associates provide 24-hour coverage for hotels, and most physicians speak English (Indeed, the typical Swiss physician is quadrilingual, speaking German, French, Italian, and English). Physicians are highly specialized, and any full-service hospital offers not only the full panoply of inpatient services but such outpatient amenities as prothrombin times, multichannel profiles, chemotherapy, and pacemaker readings.

In Search of Health Systems

As one visits these countries and reports on their health systems (I have previously written on the Mexican, English, Scottish, Yugoslavian, Hungarian, and Chinese systems), one cannot help but be reminded of the truism that each country's health system evolves out of its own cultural, political, and economic backgrounds.

The Third-World

In the third-world, i.e. the poor nations, most governments have set up public assistance programs, backed by general taxation, but universally underfinanced, overcrowded, and understaffed. Most of these countries overproduce and undertrain physicians. Physicians who survive economically and actually practice make the bulk of their income, not from the government, but from private practice. On paper, the government often pretends it offers the services of full-time physicians. Physicians, in turn, often make their appearances at public clinics and hospitals in the morning and early afternoon. But in the late afternoon and evenings, most successful physicians conduct outside practices for private patients. They do this to keep their professional skills intact and to sustain a decent standard of living.

The Rest of the World

In developed nations, health care systems fall into two categories: (1) Health Insurance from Government or Nongovernment Sources. Around the world, health insurance schemes cover about 711 million people, or 18 percent of the world's people.³ The United States and Israel are two examples of countries with predominantly nongovernment coverage. In other countries — Canada, Denmark, Iceland, and Norway — the government pays for all health insurance.

(2) National Health Services. National Health Services exist in 14 countries with 1,245 million people, 33 percent of the world's population.³ Familiar examples are England, Sweden, European socialist countries, Russia, and Cuba.

Variable Results

There is nothing uniform about the effectiveness of systems of public assistance, health insurance, or national health services. Levels of health are more a function of the state of the development of the country than the type of health system. Each system is run in accordance with cultural and managerial style of the country. In the United States, for example, we have a "loose system", with divergent sources of funds and an array of delivery systems. This dynamic approach is compatible with our political philosophy permitting patients freedom to choose physicians and allowing physicians freedom to select diagnostic and therapeutic methods. These freedoms come at the price of pure equity and access to health care and

EDITOR'S NOTEBOOK

financial sacrifice to a few. England has the most rigid system, financing everything through the central government and using the general practitioner as the sole gatekeeper into the system.

As far as money spent on health systems, this varies a great deal too. By the mid-eighties, money expended at a proportion of GNP is likely to be 15 percent in Sweden, 12 percent in the United States, and seven percent in England.⁴ By that time, continental European countries — the Netherlands, Belgium, France, Switzerland, and West Germany — will be spending 14 to 22 percent of their GNP on health, while communist nations will be devoting less than 10 percent of their GNP to health.

Mortality figures differ too, and are subject to change. From 1965 to 1979, United States mortality from coronary disease and strokes dropped by 25 percent for all age groups, raising our overall life expectancy to over 72 years.⁵ The United States is unique in the magnitude of this mortality decline. Meanwhile, in the Soviet Union, an epidemic of alcoholism and coronary artery disease caused death rates to rise 18 percent from 1964 to 1975.^{6,7} Life expectancy in Russia during this period fell from 66 to 63 years in men.

The Minnesota System

I shall end this editorial with a few remarks about health care in Minnesota. Minnesota, as you must know by now, is not only a geographic pocket of longevity in the United States (second among the States and right up there with Sweden), but probably the most exciting region for health care delivery experimentation in this country.

I won't go into all the reasons why for this ferment. Let me simply say Minnesotans have habits of innovation, interaction, and forward movement resulting from geographic isolation, ethnic homogeneity, dominance of locally based firms, a diversified economy, and public affairs activities of businessmen, professionals, and educators.⁸

Whatever the mix of reasons, the Twin Cities are at the cutting edge of the emerging competitive health system in the United States. This approach, to quote a *New England Journal of Medicine* pundit, is a "striking departure from the way in which other countries, including England, Sweden, Canada, and the Soviet Union, organize and pay for health care . . . Unlike the Scandinavians and the British, Americans are more enthusiastic about the free-market economy in general and medical-care competition in particular."⁹

We should not deceive ourselves into thinking that competitive medicine will be either pure or simple. With the government paying 45 percent of cost, any United States health care system will be a complicated mix of regulation and competition. Nor should we kid ourselves that the competitive approach will be embraced by all — the unions oppose it with a passion, the academic sector of medicine foresees nothing but dire consequences, and organized medicine isn't exactly bubbling with enthusiasm. Finally, let's not underestimate the "raw edges" of competition — public advertising, mass marketing, cut-throat practices, adverse selection, lack of equity, and possible deprofessionalism. But, say what you will, concede that the competitive approach is distinctly American and a definite part of our search for a health system.



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Upper Extremity — Replantation Surgery

BRUCE L. CUNNINGHAM, M.D.* and ALAN R. SHONS, M.D.*

The development of surgery using high magnification has allowed reconstructive surgeons to operate on the small blood vessels of the distal extremity which previously were beyond technical limits. Using this new technology reconstructive surgeons are able to replant amputated upper extremities with a high degree of survival and functional success. Improvement of functional results continues to be a major goal of replantation surgery.

THE ABILITY OF reconstructive surgeons to replace severed parts of the body is a recent chapter in the annals of surgical history. Like many dramatic advances in medical science, replantation surgery was stimulated by experience gained during military conflicts.

Jahnke and Seeley¹ reporting the Korean war experience, cited an amputation rate of 8 percent following repair of major arterial injuries. This contrasted with a 50 percent amputation rate following ligation of injured vessels. Arterial repair became the principal treatment of vascular injuries of the extremity.

Peripheral vascular surgery expanded rapidly following the Korean war, but reached its technical limits when dealing with vessels less than 4 mm diameter. In the 1960s an intensive assault was made against this 4 mm technical barrier. The technical breakthrough was made by Jacobson and Suarez² in 1960. They reported a 100 percent patency rate in arteries 1.4 mm in diameter when the anastomosis was done using an operating microscope. The age of experimental microsurgery had begun, and an exciting new clinical frontier was opened.

Harry Buncke, a plastic surgeon, continued development of the microsurgical technique, instruments, and sutures, that would result in successful replantation surgery. In 1963³ Buncke successfully replanted a rabbit ear anastomosing an artery less than 1 mm. Next he was successful in replanting monkey digits⁴ and even in a toe to hand transfer with primary arterial and venous anastomoses.⁵

The world's first successful clinical replantation was performed by Malt and McKhann⁶ in 1962. They replaced the arm of a 12 year old boy who had been amputated at the mid-humeral level. In 1965, Komatsu and Tamai⁷ used the surgical microscope to replant a

thumb completely amputated at the metacarpophalangeal level. The era of successful clinical replantation had begun.

Definitions

For the purpose of maintaining accurate statistics, replantation of a digit must be distinguished from revascularization. In a complete amputation the part has been totally severed from the body. Such an injury requires replantation with restoration of arterial and venous continuity for survival.

In an incomplete amputation the part has been deprived of all functional arterial circulation. Restoration of arterial circulation must be accomplished by revascularization. The remaining attachments of the part may be sufficient to provide adequate venous drainage, or a venous anastomosis may be necessary.

These two types of injuries should be reported separately because each has a different prognosis for survival and functional return. Only statistics referring to replantations will be discussed in this paper.

Incidence and Clinical Material

Comprehensive statistics regarding the occurrence of upper extremity amputations are not available. Amputations represent approximately 5 percent of all upper extremity injuries and may number as many as 150,000 Americans per year.⁸ Eighty-nine percent of amputations involve people of working ages (15-64 years). The hand and fingers account for 97 percent of all traumatic amputations reported.

In general the incidence of amputation decreases the more proximal the injury site. Multiple finger replantations are rare, two or three are seen per year in busy centers like the one at Harvard.⁹ A worldwide incidence of 1-10 replants per 100,000 population can be extrapolated from the reports of several large series.

The mechanism of injury is important because it has

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a definite influence on the outcome of the replantation attempt. Injuries are classified as sharp, localized crush, and avulsion or degloving injuries. Guillotine injuries occur in one-third of cases and are caused by sharp blades, paper and wood cutters.¹⁰ Localized crush injuries, caused by power saws, bicycle chains, and punch presses are the most common, comprising two-thirds of all injuries. Avulsion, degloving, and diffuse crush injuries are caused by power take offs and conveyer belts. These injuries are present 3 percent of the time in replantation attempts.

Injuries with a significant crush component are less likely to survive following a replantation attempt because of the degree of trauma involved. Because of the broad distribution of the traumatic force, avulsion injuries result in massive blood vessel and nerve damage. These injuries have the worst success rate and functional prognosis.

Initial Care

The initial care of a patient with an amputation injury is of critical importance to the final success of the replantation. Co-workers and the paramedical personnel who first arrive at the scene of injury must be alert to the possibility of a replantation. They should recover all amputated parts available at the site. While some of the parts may not be suitable for replantation, they can serve as useful donor sources for needed tissue.

The primary responsibility of the referring hospital is the evaluation and resuscitation of the injured patient. The more proximal the injury site, the greater the likelihood that associated injuries are present. These injuries must be dealt with prior to consideration of a replantation. Bleeding from the proximal amputation stump can invariably be controlled with pressure, not with clamps, ligation or cautery. The patient must be completely stable prior to transportation to the replantation center.

Cooling maintains the viability of the amputated part by decreasing its metabolism. The amputated part should be irrigated clean of gross debris and wrapped in a saline moistened sponge. The part is protected in a plastic bag or waterproof container and placed in an ice chest. If packed in dry ice or placed in direct contact with ice, the part may freeze making a replantation impossible. Incomplete amputations should be cooled with ice packs incorporated into the dressing.

Amputated parts treated in this manner can be preserved safely for many hours. Warm ischemic time of six to ten hours is tolerable.¹¹ Digits have been successfully replanted following 28 hours of cold ischemia.¹² Because of this, transfer to a replantation

center can be accomplished in an orderly manner following complete and thorough evaluation of the patient.

Indications for Replantation

As clinical experience has accrued, the indications for replantation are becoming more standardized. While our judicial system has not determined that every patient has legal right to a replantation attempt, the clinical decision should probably be made at a replantation center by personnel familiar with such procedures. At present the only absolute contraindications to replantation are the patients' refusal, or an inordinate risk of anesthesia because of concurrent disease or systemic injury.

The goal of replantation surgery is not simply survival of the part but functional utilization of it. Amputations of the thumb and multiple digit amputations are a strong indication for replantation. These injuries are particularly disabling, and a less than perfect functional result is of greater benefit to the patient than complete absence of the digit. Results of any replantation in children are particularly rewarding because of their ability to adapt to the final result.

Preservation of a part that has poor sensation, which is stiff and not integrated to the daily life of the patient has done him a great disservice. Because of this, relative contraindications to replantation surgery have emerged. It is generally felt that single digit replantations, except the thumb are not rewarding. This is particularly true of the index finger. The long finger substitutes for a less than perfect index finger. The stiff index finger is bypassed and represents a liability to the entire hand. An emerging exception to this rule is an amputation distal to the proximal interphalangeal joint where good function and excellent cosmesis can be obtained following single digit replantation.

Clinical experience has allowed replantation surgeons to predict subsequent function based on the mechanism of injury. Amputations where there is a large degree of crush, or avulsion of nerves and tendons, gives a poor functional result. For that reason many of these digits should not be replanted. Double-level injuries are technically difficult to replant and usually indicate extensive damage to the part. Survival of the replant may be achieved but functional success is rare. Amputations in the elderly are generally not functionally successful because of stiffness and inability of the patient to adapt to the new sensory patterns. These patients may not be significantly aided by a replantation.

In the final analysis, the decision regarding replantation must be individualized. The motivation and strong wishes of the patient may override other considerations. Extenuating circumstances such as occupational requirements, the index finger of a musician; or cosmesis, the ring finger of an adolescent, influence the decision to replant a part.

To make an informed decision regarding replantation, the patient must understand that the surgery does not result in a miraculous restoration of a normal part. A long and difficult primary operative procedure, which may be followed immediately by a salvage procedure, will be required. Hospitalization will be from one to four weeks and return to heavy work will be delayed for four to six months. The period of rehabilitation is long, requiring extensive patient cooperation. One or two subsequent procedures may be necessary to restore adequate function to the part.

Operative Care

Upon arrival at a replantation center the overriding priority remains to rule out significant associated injuries. A thorough examination and appropriate laboratory studies are performed. X-ray films are taken of the amputation stump and the injured part. A precise history of the injury, including past trauma to the hand is obtained.

While the patient is being prepared for surgery, one surgical team can take the amputated part to the operating room for initial examination. All important structures are identified and labeled under loupe magnification for later use. The part is returned to the ice bath. In multiple digit amputations the most anatomically intact part should be placed in the most useful functional position.

At the University of Minnesota Microsurgical Center, general anesthesia is preferable for replantation surgery. The procedure can begin, however, under an axillary block if general anesthesia is not immediately available. The extremities and appropriate pressure points should be well-padded, and a foley catheter inserted. A pneumatic tourniquet is placed.

When technically possible all structures are repaired at the initial replantation procedure. The sequence of repair is controversial and differs from center to center. At the University of Minnesota Microsurgical Center the following order is usually followed: (1) Bone shortening and stabilization; (2) Flexor tendon repair; (3) Extensor tendon repair; (4) Arterial anastomosis; (5) Dorsal vein anastomosis; (6) Nerve repair; (7) Skin closure.

The overriding principle in replantation surgery is to join normal vessels. Good pulsation in the proximal

stump does not always mean a normal vessel is present. Inspection under the operating microscope is necessary to determine the degree of damage to the microvasculature. If the proximal vessel does not bleed actively when the vascular clamp is removed, it must be aggressively debrided back to normal vessel. Vein grafts are interposed to bridge the gap created by the debridement. It is much better to excise damaged artery and interpose a vein graft than to perform a primary anastomosis on a less than perfect arterial stump.

The quality of nerve repair is very important to the final functional results following replantation. Unfortunately the neurotomy is done at the end of a long procedure, often by a less experienced member of the microsurgical team. The nerve should always be repaired with the same meticulous care exercised in the vascular anastomoses.

Postoperative Care

The replanted part should be exposed for examination and evaluation. Many methods have been proposed to monitor the replant^{13,14} but none have replaced direct clinical observation. For the first 48 hours the replantation should be checked on an hourly basis. Changes in circulation should be brought to the attention of a member of the microsurgical team. A presumed change in circulation can be confirmed by sticking a 21 gauge needle in the finger tip to the bone. Prompt flow of red arterial blood is reassuring. The rapid flow of dark blue blood is suggestive of venous congestion or thrombosis. No re-flow in a pale extremity is the hallmark of an arterial thrombosis. If the clinical examination is suggestive of a vascular thrombosis, the patient should be returned to the operating room promptly for re-exploration.

Postoperative medications include intravenous antibiotics, and anticoagulants. Aspirin 600 mg is given twice daily and low molecular weight dextran is given intravenously for five to seven days. The use of heparin is controversial in replantation surgery. Because there is little documented benefit to systemic heparinization,¹⁵ and the risks are considerable, we do not use it as a routine measure. Heparin is used commonly when there is a large crush component to the injury and following re-operation for vascular thrombosis.

Results

The incidence of successful replantations has increased steadily through the years as a result of improved technical skills and more appropriate patient selection. Currently, in many centers, survival rates in the range of 75-90 percent are reported.^{10,16-20}

Immediate re-exploration for vascular thrombosis is necessary in approximately 20 percent of patients and 50 percent of these can be salvaged.¹⁵

The average hospital stay for patients having successful replantations was ten days in the Louisville study¹⁰ and rose to seventeen days when a secondary procedure was necessary. Secondary reconstructive procedures were necessary in 30 to 40 percent of patients, in most series reported. These procedures included tenolysis, tendon and nerve grafts and joint revisions. Disability time for all replantation patients was four and a half months, but it was six months in the patients who had successful replantations. Eight to ten percent of patients remain permanently unemployed.¹⁸

Functional success following replantation surgery is difficult to assess. Objective measurements of sensation and motion are useful parameters,^{11,21} since they are two requirements for good function. Most patients have some residual stiffness. In many series a

two-point discrimination was in the range of 1 cm. All series report cold intolerance as the most common cause of patient dissatisfaction following replantation. The final determination of functional success hinges on whether the patient successfully re-integrates the replanted part in daily life. Berger, et al.¹⁸ reports 78 percent of a large series successfully re-integrated their replanted parts. It speaks well of replantation surgery that 80 percent of the patients returned to their original occupation. When asked whether they would undergo replantation again approximately 90 percent of patients responded positively.

Pursuit of better function continues to be the major goal of replantation surgery. With more appropriate patient selection, survival and functional success should improve even more. As advances in clinical immunology proceed, the possibility of replacing damaged tissue with normal vascularized allografts emerges as the new frontier in microsurgery.

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Rheumatology Corner

Gouty Arthritis

ROGER S. COLTON, M.D.*

GOUTY ARTHRITIS is caused by deposition of monosodium urate crystals in joints. It is a disease beginning primarily in middle-aged males. Occasionally afflicting pre-menopausal women, and more rarely, youth, such onset early in life heralds persistent and severe disease. Fifty percent of the time, gout presents as podagra — acute, erythematous, painful bunion joints (first metatarsal joint), and is a helpful historical marker for retrospective diagnostic purposes. Features of acute gouty arthritis by history and physical examination are listed in Table. Initial or early recurrent attacks of gouty arthritis are usually acute, brief (two to five days), involving one or several joints (one-third of the time), usually distal to the elbows or knees. Frequently the skin about the joint has an appearance of cellulitis, and as the inflammatory response resolves, characteristic scaling of the skin may occur — another retrospective diagnostic marker. Gouty arthritis occurs in a setting of acidosis created by such events such as acute physical activity, dehydration, excessive alcohol or food intake, weight reduction, and starvation. It may occasionally present as tendonitis, most commonly in the Achilles tendon, or the tendons about the ankles.

If the acute afflicted joint or joints are rested, spontaneous resolution occurs in three to seven days.

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TABLE
Features Suggesting Gouty Arthritis

History

1. Age and sex (male over 40)
2. Frequently nocturnal onset
3. Provocation by trauma, surgery, and hospitalization for significant medical conditions (myocardial infarction, strokes)
4. Recent over-indulgence in food, drink, fasting, or exercise
5. Past history of podagra
6. Past history of monarticular or oligoarticular acute brief attacks

Examination

1. Primarily distal joints (metatarsal to knee/metacarpal to elbows)
2. Frequent point tenderness at a joint line
3. Cellulitis-like appearance of skin
4. Frequent "silent" second swollen joint

With recurrent attacks of the same joint, convalescence may be longer; if the joint is used for weight-bearing or repetitive motion, resolution of the inflammatory state may be markedly prolonged. Rarely, if ever, does an acute monarticular attack last longer than four weeks.

Chronic gouty arthritis is represented by an increasing number of involved peripheral joints, initially with brief hits, becoming longer in time and intensity. As the course of chronically active gouty arthritis progresses tophi may occur and simulate nodular rheumatoid arthritis.

The common differential diagnosis of gouty arthritis is (1) traumatic arthritis, (2) cellulitis, (3) septic joint, (4) acute episodic rheumatoid disease, and (5) pseudogout.

Traumatic arthritis and cellulitis are usually apparent by history and physical examination. If suspected, joint fluid cultures confirm septic arthritis. Episodic rheumatoid disease remains a disease of exclusion, with observations of the course of the disease and geographic distribution of joint involvement important to the diagnosis. Microscopic examination for crystals is important because of the difficulty clinically in differentiating gout (urate crystal synovitis), from pseudogout (calcium pyrophosphate synovitis). Identification of uric acid crystals or calcium pyrophosphate crystals on standard microscopic examination of joint fluid aspirate confirms a diagnosis of specific crystal synovitis. Greater positive yields (95%) can be expected with the use of polarizing microscope (Figures 1 and 2).

Acute gouty arthritis will dramatically respond 90% of the time in four to eight hours to 2 mg. of intravenous colchicine given slowly over a period of five minutes. This can be repeated again at two hour intervals for a total of 6 mg. in a 24-hour period if necessary. Colchicine, two 0.6 mg. tablets taken orally every two hours until either relief of joint pain or nausea, vomiting or diarrhea, can be used therapeutically as well as diagnostically if IV colchicine is not available. Other forms of acute joint swellings rarely respond to colchicine, although pseudogout may give an incomplete response. If re-

current attacks occur, the use of nonsteroidal anti-inflammatory agents such as Indocin, 50 mg. q.i.d. for five days can be used in place of oral colchicine. The newer nonsteroidal anti-inflammatory drugs may be equally beneficial in relief of acute attacks. The necessity for total rest of the afflicted joint is most important. Forcing fluids facilitates urinary uric acid excretion and diminishes the potential of uric acid renal stone formation.

Treatment of gouty arthritis between acute attacks (interval therapy) is predicated on the assumption that lowering the uric acid to normal will prevent future attacks. This is well proven. However, the use of allopurinol or probenecid daily for the remainder of an individual's life to normalize uric acid must be weighed with the fact that a significant number (up to 50%) of individuals have less than two to three attacks of gout in their lifetime. With this in mind

more rheumatology clinics are providing the individual who has had a previous attack of gout with a prescription for a nonsteroidal anti-inflammatory agent to take at the time of the next attack of gout. Only if an individual has increasingly more frequent attacks of gout or has persistently elevated serum uric acid levels greater than 40% of normal laboratory value is interval therapy for reduction of hyperuricemia prescribed. If such therapy is indicated, it is important to prophylactically use colchicine or a nonsteroidal anti-inflammatory agent for a minimum of three months while uric acid levels are being reduced. 20% of individuals initially started on allopurinol or benemid to reduce uric acid can have acute gouty attacks provoked by the use of these agents until serum uric acid levels are reduced to normal.

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Fig 1 — Phagocytosed urate crystals (polarized and ordinary light microscopy). Permission of the Arthritis Foundation. Taken from Foundation's revised clinical slide collection on rheumatic disease, 1981.

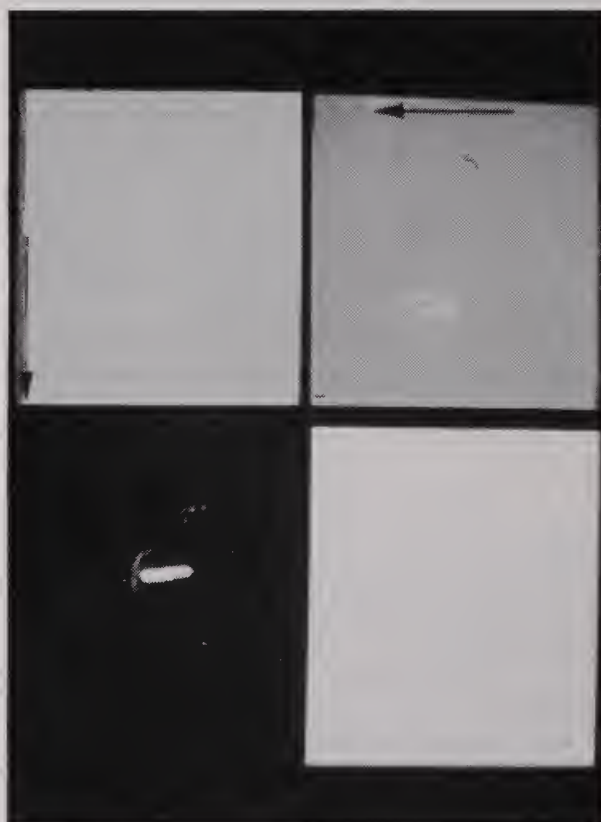
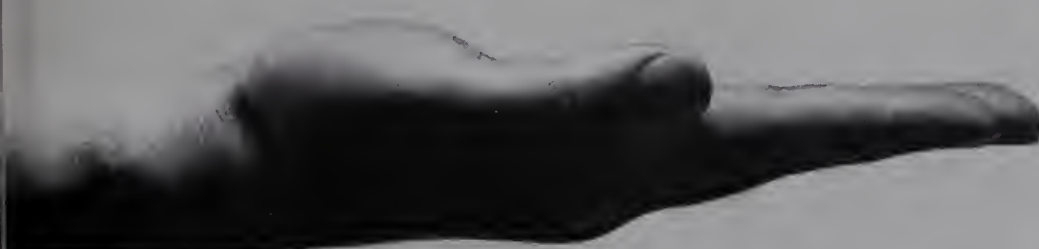


Fig. 2 — Calcium pyrophosphate crystals (ordinary, polarized and compensated polarized light microscopy). Permission of the Arthritis Foundation. Taken from Foundation's revised clinical slide collection on rheumatic disease, 1981.

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Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients. (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving)

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies.

Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide)

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extropyrindol symptoms, syncope, changes in EEG patterns

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. IV administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

How Supplied: White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10. Prescription Packs of 50.

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Screening Asymptomatic Family Members for Wilson's Disease

J. A. LINDAHL, M.D.* and H. L. SHARP, M.D.*

Wilson's disease is an autosomal recessive disorder of copper metabolism. Recognition of the disease is imperative because early therapy affects prognosis. The diagnosis in two presymptomatic siblings of a patient with Wilson's disease has prompted a review of the literature concerning the differentiation of heterozygotes and homozygotes for Wilson's disease.

THE CLINICAL PRESENTATION of Wilson's disease assumes many forms; neurological abnormalities, Kayser-Fleischer rings, rickets, or hemolytic anemia. The spectrum of liver disease includes serum glutamic oxaloacetic transaminase (SGOT) elevation, hepatomegaly, splenomegaly, jaundice, fulminant hepatitis, chronic active hepatitis, childhood cirrhosis, and portal hypertension.¹⁻⁵ Moreover, this diagnosis must be considered in family members of patients with Wilson's disease. Differentiation must be made between homozygous and heterozygous siblings. Typical screening tests for Wilson's disease include serum ceruloplasmin and copper levels, urinary copper excretion with and without penicillamine challenge, and routine liver function tests. Overlap in screening tests results occurs more frequently between homozygote and heterozygote than between homozygote and the normal population. A definitive diagnosis, based on these studies alone, may be difficult. A diagnostic liver biopsy may be necessary in some circumstances.

Case Reports

Case 1

An 18-year-old is a brother of a 17-year-old male presented with Wilson's disease at age 13. Past medical history was unremarkable for evidence of liver disease, hemolytic anemia, or neurological disease. Physical examination revealed no Kayser-Fleischer rings, hepatomegaly, splenomegaly or stigmata of liver disease. Neurological examination was completely normal. Previous laboratory studies obtained when his sibling presented with Wilson's disease included a ceruloplasmin of 2 mg/dl, urinary copper excretion of 242 $\mu\text{g}/24$ hours and urinary copper excretion of 617 $\mu\text{g}/24$ hours associated with a single 250 mg dose of penicillamine. At the time of presentation to us, further evaluation revealed an SGOT of 22. Repeat urine copper studies were obtained on 250 mg of penicillamine q.i.d. for 48 hours. 1223 μg of copper were excreted during the first 24 hours and 4311 μg during the second. Liver biopsy showed moderate fatty metamorphosis and some glycogen nuclei. Fibrosis was minimal. Rubeanic copper stains

failed to reveal copper in the hepatocytes. The hepatic copper level was 1067 $\mu\text{g}/\text{g}$ dry weight.

Case 2

This patient is the 13-year-old sister of Case 1 who was also well at the time of referral. Past medical history and physical examination were unremarkable for evidence of Wilson's disease. Previous laboratory studies obtained when her sibling presented with Wilson's disease revealed a serum ceruloplasmin level of 3 mg/dl, a urinary copper excretion of 197 $\mu\text{g}/24$ hours and urinary copper excretion of 246 $\mu\text{g}/24$ hours with a single 250 mg dose of penicillamine. At the time of presentation to us, repeat urine copper studies were obtained on 250 mg penicillamine q.i.d. for 48 hours. Results were 2450 and 1226 μg of copper excreted per 24 hours. Liver biopsy demonstrated moderate fatty metamorphosis and glycogen nuclei. Mild periportal fibrosis was evident with minimal collapse of lobules and no cirrhosis. Rubeanic copper stains failed to reveal copper in the hepatocytes. The hepatic copper level was 1246 $\mu\text{g}/\text{g}$ dry weight.

These patients have prompted a review of the medical literature regarding differentiation of presymptomatic cases of Wilson's disease from heterozygotes for this trait. Presymptomatic cases of Wilson's disease have been strictly defined to include only cases where no evidence of liver disease (including hepatomegaly or splenomegaly), neurological disease, hemolytic anemia or Kayser-Fleischer rings are present. Tables 1 and 2 summarize the data in the literature concerning presymptomatic patients with Wilson's disease and heterozygotes for this trait. It has not always been possible to determine when cases have been reported more than once. Therefore, no attempt has been made to total the data.

Hepatic Copper Concentrations

Hepatic copper concentrations greater than 250 $\mu\text{g}/\text{g}$ dry weight of liver tissue appear to be considered by authors to be consistent with Wilson's disease in the absence of significant hepatic dysfunction.⁶ When hepatic dysfunction is present, higher hepatic concentrations can be compatible with other entities and levels greater than 400 $\mu\text{g}/\text{g}$ dry weight have been reported to differentiate Wilson's disease from chronic active hepatitis.⁷ Hepatic copper concentrations up to 3,000 $\mu\text{g}/\text{g}$ dry weight have been reported in Wilson's disease.⁸ Biopsies of 16 heterozygotes revealed a

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range of 39-213 $\mu\text{g/g}$ dry weight.^{6,9} A hepatic concentration of 261 $\mu\text{g/g}$ dry weight has been reported in one heterozygote patient.¹⁰ The hepatic copper concentrations of 1067 and 1246 $\mu\text{g/g}$ dry weight are pathognomonic of Wilson's disease in our asymptomatic patients.

Hepatic copper concentrations can be valuable for following patients' responses to therapy as well. No other single parameter more accurately reflects the effectiveness of therapy.¹¹ As our patients exemplify, quantitative determination of hepatic copper content is superior to staining techniques. Both patients had routine rubeanic acid stains for copper which were negative despite their tremendously increased hepatic copper levels.

Serum Ceruloplasmin

Interpreted alone, depressed serum ceruloplasmin levels are highly suggestive of, but not diagnostic for Wilson's disease. Ten to twenty per cent of heterozygotes will have depressed ceruloplasmin levels (Table 2). These can be in an extremely low range, even as low as demonstrated in our patients.⁶ Thus, ceruloplasmin alone cannot distinguish the heterozygote from the presymptomatic homozygote. The most beneficial

use of ceruloplasmin levels is in patients in whom levels are high normal ($> 30 \text{ mg/dl}$). Most authors agree that this rules out homozygosity for Wilson's disease.¹²

Urinary Excretion of Copper (UEC)

Urinary excretion of copper in heterozygotes can be mildly increased.¹³ No well defined specific upper limit of UEC in heterozygotes can be discerned from the literature. However, it is rare for heterozygotes to excrete greater than 100 $\mu\text{g}/24$ hours. UEC greater than 200 $\mu\text{g}/24$ hours has been considered diagnostic. More confusing than the elevated UEC is the normal or borderline test result. Arima and co-workers report 6/9 presymptomatic patients with UEC less than 200 $\mu\text{g}/24$ hours¹⁴ and Werlin reports UEC of 68 $\mu\text{g}/24$ hours ($\text{nl } 48 \pm 16$) in a presymptomatic patient.¹⁵ Up to forty percent of presymptomatic patients have been reported to excrete less than 100 $\mu\text{g}/24$ hours and the data confirm this (Table 1).

Evaluation of patients with normal or borderline UEC can be pursued with the penicillamine challenge test. The penicillamine challenge test employed in our patients was modified from the method of Sass-Kortsak.¹⁶ Patients are given 250 mg of penicillamine

TABLE 1
Presymptomatic Patients with Wilson's Disease

	Ceruloplasmin (mg/dl)	UEC ($\mu\text{g Cu}/24 \text{ hrs.}$)	Transaminase Levels	Hepatic Cu levels ($\mu\text{g/g dry weight}$)
Tu ¹⁸	N.D.	>100 (3/3)	$\uparrow$ (3/3)	N.D.
Sternlieb ²¹	* < 20 (7/7)	$>100 \text{ ug}/20 \text{ hrs.}$	N.D. †	261-1561 (7)
Levi ⁹	(nl 100-150)	>100 (4/7)	N.D.	**152-720 (7)
	< 100 (8/8)			
Sternlieb ⁶	< 20 (52/53)	* >100 (16/29)	N.D.	**152-1828 (36)
Sternlieb ¹⁰	$\downarrow$ (19-/20)	>100 (22/34)	N.D.	N.D.
Tu ¹³	N.D.	>100 (3/3)	$\uparrow$ (3/3)	315 (1)
Strickland ²²	< 20 (2)	>100 (6/6)	N.D.	110-1300
Arima ¹⁴	< 5 (6/7)	>200 (2/7)	$\uparrow$ (6/7)	$\uparrow$ (6/6)
Gibbs ²⁰	* < 25 (6/6)	>40 (4/6)	$\uparrow$ (4/6)	***62.5-195 (3)
Perman ⁷	< 22 (5/7)	>100 (5/6)	N.D.	411-1195 (4)
Sternlieb ⁹	< 20 (1/5)	>100 (5/5)		563-1699 (5)
Werlin ¹⁵	< 10 (5/7)	>180 (6/7)	$\uparrow$ (5/7)	N.D.

† N.D. not done.

* Decreased ceruloplasmin indication for further study.

** 152 $\mu\text{g/g}$ dry wt. repeated in 9 mos. and 400 $\mu\text{g/g}$ dry weight.

*** Normal hepatic copper concentrations ≤ 10 .

TABLE 2
Heterozygotes for Wilson's Disease

	Ceruloplasmin (mg/dl)	UEC ($\mu\text{g Cu}/24 \text{ hrs.}$)	Transaminase levels	Hepatic copper ($\mu\text{g/g dry weight}$)
Sternlieb ²³	< 20 (1/9)	N.D. †	N.D.	N.D.
Sternlieb ²¹	< 20 (15/75)	70 $\text{ug}/20 \text{ hrs.}$ (1)	N.D. †	39.2 (1)
Levi ⁹	$\downarrow$ (3/9)	>100 (0/2)	N.D.	105,145 (2)
Sternlieb ⁶	1-50.1 (95)	N.D.	N.D.	39-213 (14)
Cox ²⁴	$\downarrow$ (3/47)	N.D.	N.D.	N.D.
Gibbs ²⁰	< 25 (8/12)	8-35 (11/11)	Sl. (2/7)	N.D.
Gibbs ²⁵	$< 5\%$ ile (36/160)	N.D.	N.D.	N.D.

† N.D. Not done

every six hours for forty-eight hours. Two 24 hour collections of urine are obtained in copper free containers. While normal individuals show increased copper excretion to the range of 400-800 $\mu\text{g}/24$ hours, patients with Wilson's disease excrete greater than 1000 $\mu\text{g}/24$ hours. In Taiwan, Tu et al. have reported good separation of heterozygotes from homozygotes with penicillamine challenge. All heterozygotes had UEC less than 1500 $\mu\text{g}/\text{day}$ while all homozygotes had UEC greater than 2000 $\mu\text{g}/\text{day}$. These authors do not delineate the specific penicillamine challenge test employed.¹⁷

Liver Function Tests

Early reports in the literature considered transaminase levels to be most helpful in distinguishing early stages of Wilson's disease.¹⁸ An early report found increased transaminase levels in five out of five presymptomatic patients. However, more recently Strickland and Leu report increased SGOTs in only 36% of 40 patients with Wilson's disease.⁴ Two out of seven presymptomatic patients reported by Werlin had normal liver function tests.¹⁵ Certainly normal trans-

aminase levels do not rule out Wilson's disease and slight elevations can be consistent with heterozygosity. Transaminase levels have the least value of the screening tests frequently employed.¹⁷

Summary

The measurement of hepatic copper concentration in conjunction with liver histology definitively diagnosed presymptomatic Wilson's disease in our two case reports. However, one could question the practicality of an invasive procedure to differentiate between a heterozygote and presymptomatic homozygous individual. Although the 24 hour urinary copper excretion can be misleading, our patients illustrate the value of monitoring urinary copper excretion during two grams or 750 mg/M² of penicillamine administered over 48 hours. Finding over 1000 $\mu\text{g}/24$ hours of copper in the urine identifies the presymptomatic patient from the carrier state. Otherwise only a ceruloplasmin level over 30 mg/dl eliminates the consideration of Wilson's disease. Recognition is imperative since early therapy affects prognosis.

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Child Abuse

ROBERT L. KURLAND, M.D.;* ANTHONY J. BIANCO, JR., M.D.;† JOHN F. HICK, M.D.;‡
ALAN D. HOFFMAN, M.D.;§ and VICKI DUFFNEY, M.S.W.¶

Dr. Anthony J. Bianco, Jr.: Today we are going to talk about an important subject, but one that is not pleasant. We treat about 800 spine and extremity fractures in children a year here. Most present with an adequate history of trauma to account for the fractures. A second, less frequent group come in with insignificant trauma and an obviously pathologic fracture in abnormal bone. The third, and fortunately the least common group are children who come in with a fracture in normal appearing bone without an adequate history of trauma. This situation should

always alert you to the possibility of child abuse.

Dr. Robert L. Kurland: Case One is a five-week-old white male, son of an unwed working mother. On October 14, 1974, he was taken to the Emergency Room after falling one foot to the floor and striking his head. There was no fracture and he was dismissed. On December 7 he fell from his infant seat at the babysitters and was guarding his right lower extremity. An examination in the Emergency Room was normal, and again he was dismissed. Two days later, he was taken to Community Pediatrics with a fever and inability to sleep. There was no mention in the history about the right lower extremity. He was treated for an upper respiratory infection, cradle cap, and oral thrush. The next day she returned with the story that he had fallen from the infant seat at the babysitters. Examination of the left thigh showed warmth, swelling, and resistance to motion. This Xray was taken (Figure 1).

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Fracture Conference, March 18, 1981.
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Fig. 1 (A) — Five-week-old boy, left femur, AP view.



Fig. 1 (B) — Five-week-old boy, left femur, lateral view.

Dr. Bianco: Dr. Clark what do you see?

Dr. Tee S. Clark: There's a spiral fracture of the midshaft of the left femur.

Dr. Bianco: Does this alert you to anything?

Dr. Clark: It is a bit unusual for the history given. I would question the mother further and review his chart at that time.

Dr. Kurland: The patient was placed in Bryant's traction for three days then treated in a spica cast (Figure 2). A skeletal survey was negative; however, his hemoglobin was 8.8 and the possibility of child neglect was considered. During the investigation, the mother commented that the babysitter's husband was "a violent man" but not the type who would hurt her child. The child was dismissed from the hospital and a week later returned with a foul smelling, urine soaked cast and a severe yeast infection of the groin. He was placed in Bryant's traction again. A few days later a left peroneal palsy was noted. An Xray (Figures 3(A) & (B)) showed healing of the fracture and the child was dismissed. One month later the skin condition was improved, but there was still no dorsiflexion of the left foot. Two weeks later a hint of active dorsiflexion of the foot was noted. The patient was asked to return in



Fig. 2 — Five-week-old boy, left femur, AP view in spica cast.

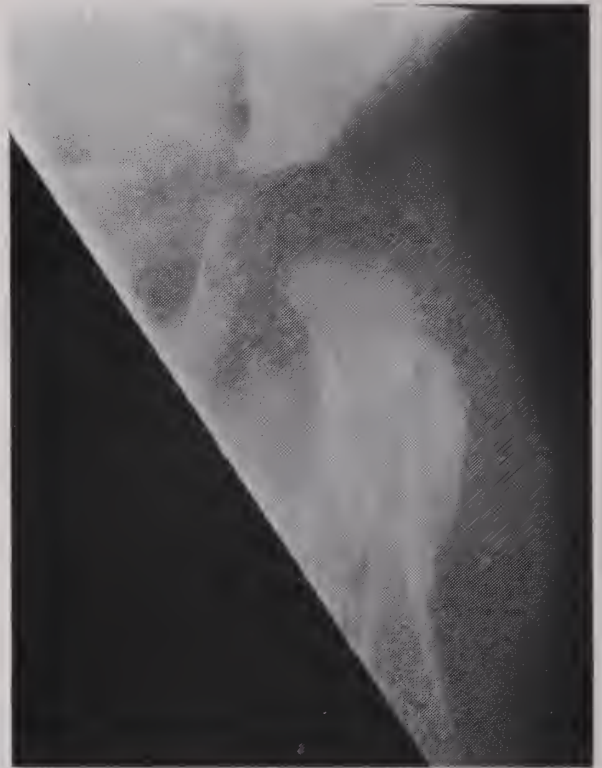


Fig. 3 (A) — Five-week-old boy, left femur, AP view two weeks after injury.



Fig. 3 (B) — Five-week-old boy, left femur, lateral view two weeks after injury.

six weeks, but was not brought back.

The second case is a three month old girl whose mother is a college student and father is an unemployed blue collar worker. Earlier this year the child had the flu. During a diaper change her mother heard a snap, and the child began to cry. She was not moving the left lower extremity so they went to the local doctor. Xrays were normal and a presumptive diagnosis of septic arthritis of the left hip was made. On examination here, she was a healthy appearing girl lying quietly moving all extremities except for the left leg. Any attempts to move it caused pain. There was no warmth, swelling, or erythema. This Xray was taken (Figure 4).

Dr. Bianco: How do you relate this injury to the history, Dr. Buck?

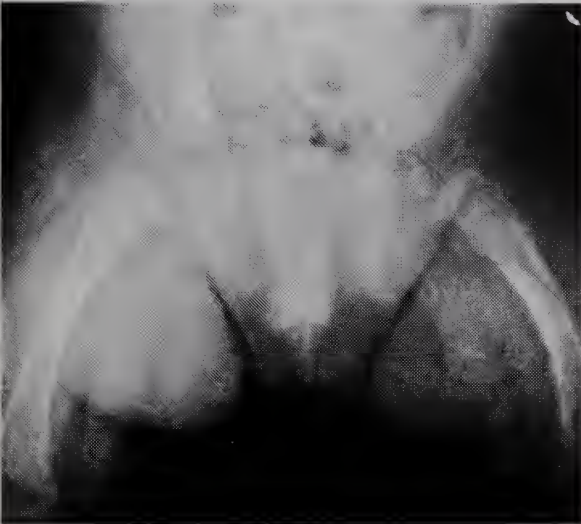


Fig. 4 — Three month-old girl, AP pelvis, fracture, left femur.

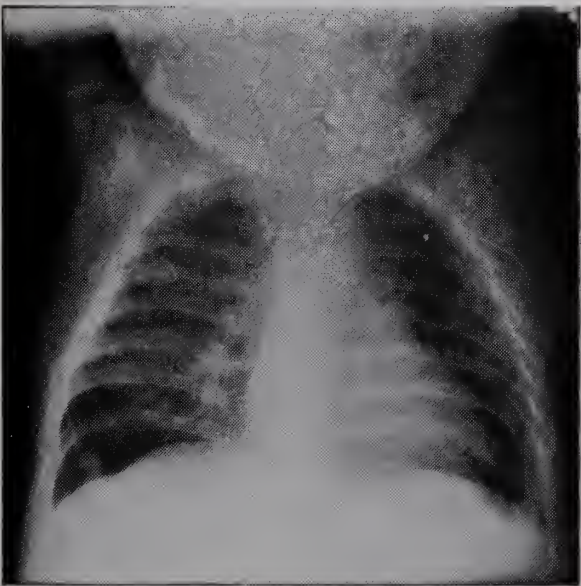


Fig. 5 — Three-month-old girl, chest Xray, proximal humeral metaphyseal changes due to the old trauma.

Dr. Peter G. Buck: There's an oblique fracture of the shaft of the left femur. I don't see changes consistent with bone disease and the history does not seem consistent with the injury.

Dr. Kurland: A chest Xray was also taken. (Figure 5) Would you like to comment about this Dr. Hoffman?

Dr. Alan D. Hoffman: Rib fractures are a good thing to look for, but I don't see any here. Small children's ribs don't often fracture because their chests are so resilient. However, the proximal humerus is kind of thickened and irregular and there may have been an old metaphyseal fracture here. I think this is significant because the cortical bone appears normal except for the evidence of trauma.

Dr. Bianco: The parents continued to deny child abuse and were constantly insisting that we overlooked some form of generalized bone disease.

Dr. Kurland: Ironically, one of the questions this mother first asked was "do you ever consider child abuse in a case like this?"

The right femur was treated in a spica cast and a referral made to the local Welfare Department. Three weeks later the cast was removed; the fracture was healing well (Figure 6). Clinically, she moved the leg

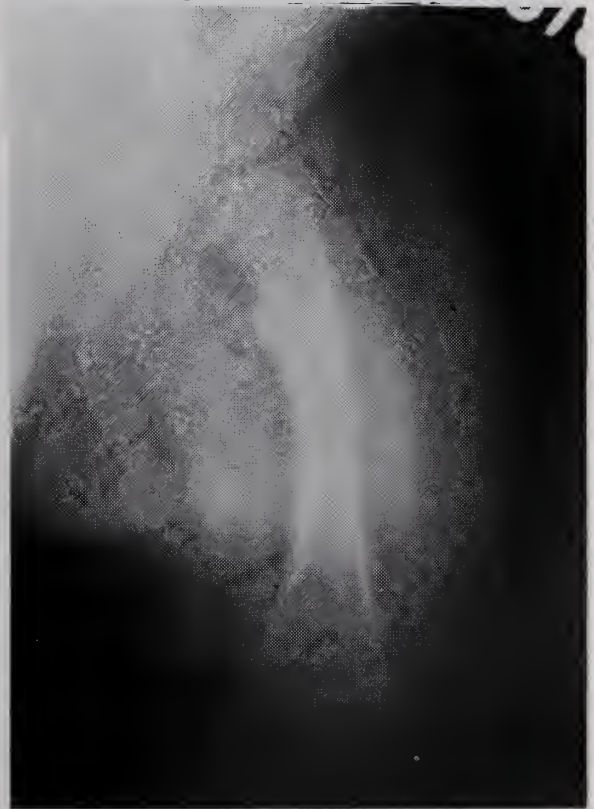


Fig. 6 — Three-month-old girl, AP left femur, three weeks after injury.

as soon as the cast was off. Two weeks later she returned again after falling about three feet off a washing machine on to a carpeted floor. An Xray revealed a fracture in the distal femur, well below the site of the old fracture (Figure 7 (A) & (B)).

Dr. Bianco: This is not a refracture, although it might be considered a pathologic fracture because the bone

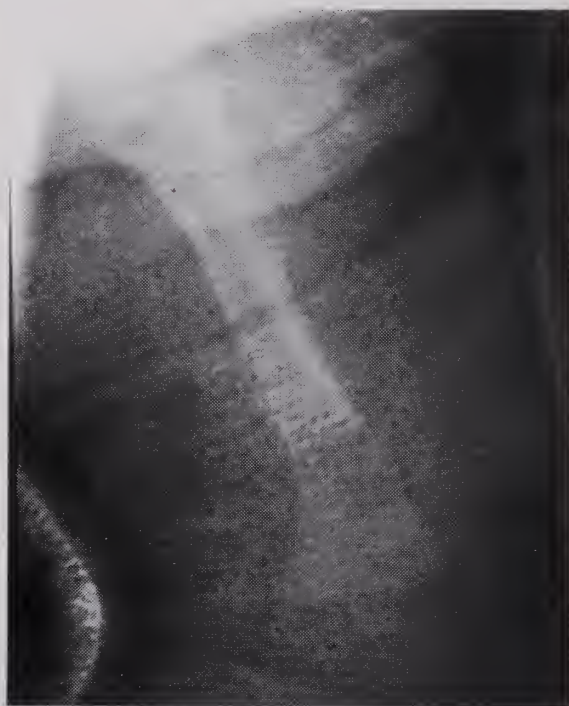


Fig. 7 (A) — Three-month-old girl, AP left femur, in cast, new fracture in midshaft.



Fig. 7 (B) — Three-month-old girl, lateral left femur, in cast, new fractures in midshaft.

was weakened by the previous immobilization. Again, the history of trauma was rather vague and conceivably could have been an accident, but circumstances again were suspicious.

Dr. Hoffman: A study about four years ago from Michigan State looked at infants who had fallen out of bed or a comparable height.¹ They found that of 254 incidents that had occurred at home or in the hospital there were only three skull fractures, a humeral fracture, and two clavicular fractures.

Dr. Kurland: At the mother's continued insistence, a complete medical workup was done again with no evidence of any bone or metabolic disease.

Because of the concern for the child, she was dismissed from the hospital in the custody of the Welfare Department. Three weeks later the cast was removed: the second fracture healing well (Figures 8 (A) & (B)).

Dr. Bianco: This mother still insists that we are overlooking a bone disease. Dr. Hick, how far do we have to go in trying to make a diagnosis of generalized bone disease in the presence of normal appearing bone on the Xray and normal routine laboratory work?

Dr. John F. Hick: Obviously, there's not much further you can go. We run into this problem of denial



Fig. 8 (A) — Three-month-old girl, AP left femur, three weeks after second fracture.



Fig. 8 (B) — Three-month-old girl, lateral left femur, three weeks after second fracture.

by parents. Yet, it is important not to overlook the possibility that neither parent may have witnessed a serious accidental injury to a preverbal child. What at first may represent abuse may actually represent neglect through inadequate supervision by the parents.

Dr. Hoffman: Although child abuse probably has been happening since time began it was not really appreciated until these last 40 years. What we have seen today, the shaft fractures, are a lot more common and caused by direct trauma while metaphyseal corner fractures are often caused by shaking or twisting motion. Fractures seen in different bones at different stages of healing are indicative of repeated episodes of trauma and absolutely characteristic of abuse. The most important and the most serious types of injuries are to the head. A baby's head is much heavier relative to the body than in older patients and the neck muscles are weak. Vigorous shaking can cause a subdural hematoma. A skull Xray showing spread sutures or a bulging fontanelle will make this diagnosis but we suggest a CT scan for patients with neurologic findings. Other injuries including dislocations or a traumatic slipped epiphysis have been described as have some common fractures which are less suspicious such as clavicle fractures. Soft tissue injuries inflicted to the abdomen or the skin might result in bruising or scarring. In evaluating child abuse cases we recom-

mended a skeletal survey.

Obviously, accidental trauma is the most difficult to differentiate. Birth injuries with difficult deliveries have been studied and the periosteal new bone was always present by 11 days of age. Consequently, if you see an injured infant and have a previous Xray without periosteal new bone, then the injury had to occur after birth. Metabolic diseases, such as rickets or scurvy, and hereditary or acquired osseous disease including infantile cortical hyperostosis (Caffey's disease), osteogenesis imperfecta, metaphyseal dysplasias, periostitis, syphilis, osteomyelitis, sickle cell anemia, leukemia, or even histiocytosis must be ruled out. I think the Xray findings are critical and if there is any suspicion, the skeletal survey is the way to go.

Dr. Mark B. Coventry: Are spine injuries reported or possible?

Dr. Hoffman: There have been compression fractures of vertebral bodies with anterior wedging and even one case of a dislocation in the thoracic region.

Dr. Lowell F. A. Peterson: What is your feeling on bone scanning young children?

Dr. Hoffman: Acute injuries might be missed in the first 48 hours, and you don't get very good detail with a single projection scan of the skeleton.

Dr. Peterson: Within 48 hours you usually have symptoms of something to match the area you want to radiograph, but scanning is to pick up the ones that are old, occult, or occluded by the parents' denial.

Dr. Bianco: You are quite right, but from a practical standpoint in the Emergency Room, the skeletal survey is the fastest way to see if there are any other injuries.

This condition occurs in any age group. Is there anything unusual about fractures in adolescents?

Dr. Hoffman: Nothing is particular. In the literature, most child abuse victims are very young, averaging one and a half years in age. This is why we have focused on young children in this conference.

Dr. Bianco: Mrs. Vicki Duffney of the Medical Social Service is now going to talk about our responsibilities once the diagnosis is suspected.

Mrs. Vicki Duffney: The pathological child abuser who intentionally sets out to do bodily harm to his or her child is not a very accurate stereotype. These people are under a great deal of stress, and sometimes abusive situations arise when a parent does not have an appropriate outlet or mechanism to cope with the excessive stress of daily living.

The law in Minnesota states that all physicians are mandated to report all suspicions of child abuse. The operative word here is "suspicions", a proof or an admission of guilt are not required. Failure to report these suspicions is a misdemeanor and there is currently a move to increase the penalty. In some states, physicians are also liable under the civil statutes. In California there have been several cases where the abusive family, once rehabilitated, have sued the physician for failure to report the initial episode of abuse. These have resulted in some very large settlements.

In cases of child abuse, physician-patient confidentiality under the law is no longer operative. During an active child abuse investigation all medical information must be released to local child protection officials without the patient's or family's permission. If you do report in Minnesota you are automatically protected from civil or criminal liability.

Whenever a child comes in with a history of trauma the medical history should be reviewed for significant previous trauma or possible abuse in the past. If there is a justifiable suspicion, it is appropriate for the parents to have a psychosocial evaluation. We talk with the parents about the child, their attitudes towards the children, and the stresses in the family situation. This evaluation may add to or detract from our index of suspicion at that point.

Anyone can report their suspicions of child abuse with or without an institutional backing. In Minnesota, this should be done by telephone directly to the child's County Welfare Department within the first 24 hours. On weekends the local sheriff or police department is the operative child protection agency. After that you must submit a written report which includes the identifying information regarding the child, the given history of the injury, and your feelings as to why abuse is suspected. You then describe all the physical evidence that led to the suspicion of abuse and any relevant psychiatric or social history.

After this report is sent, your responsibility ends as does the ability to receive information without the parents' permission.

Dr. Hick: Mrs. Duffney has nicely covered the steps to take when you suspect a situation of child abuse. In most of these cases we would prefer both pediatric and social worker involvement, because there are some areas where the contributions are unique enough to justify consultation. Many of these children will require nutritional and developmental evaluation. If it is a case with multiple bruises as well as a fracture the possibility of a coagulation disorder might exist. As seen in Table 1, the physician's most important role in

child abuse is prevention. In the well child clinics and the maternity ward we try to prepare parents to have realistic expectations about their child, cope in an effective manner, and to have someone to fall back on in times of crisis.

TABLE 1

Child Abuse Physician's Role
— Prevention
— Identification
— Evaluation
— Reporting
— Follow-up
— Coordination

Child abuse in Olmsted County² contrasts in certain respects the spectrum of abuse presented this morning. In 1979 there were roughly 100 cases of child abuse. These figures (Table 2) are consistent with national trends and expectations in which one per cent of children are reported as having been suspected victims of abuse or neglect.

TABLE 2

Child Abuse: Olmsted County 1979

Abuse:		
Suspected		114
Confirmed		59
Neglect:		
Suspected		154
Confirmed		67

Table 3 shows the spectrum of abuse actually taking place in Olmsted County residents. The most common problem is simple bruises with sexual abuse next in line, and only one fracture in 1979. Fractures here are certainly not as common as the more benign injuries.

TABLE 3

Child Abuse Spectrum:
Olmsted County 1979

Bruises	36
Sexual Abuse	9
Emotional Abuse	4
Long Bone Fracture	1
Skull Fracture	0
Burns	0

Table 4 is the age distribution in the 59 confirmed cases in 1979. In most centers about 40 per cent of the victims are under three years of age, but here only 20 per cent are under four years of age because there is difficulty in actually substantiating minor abuse in the very young child. An older child may present the critical evidence. The child alone may very candidly reveal the true situation but one has to be careful not to be too much of an interrogator.

TABLE 4

Child Abuse Olmsted County (1979)
Age of Victim

0-4	12
5-9	14
10-13	12
14-17	21

Twenty-one cases of abuse in the 14 to 17 year old group are interesting because in many of these cases the individual reporting the abuse was the victim; a total departure from previous social practices. In fact, the victim was the most common individual reporting suspected abuse in 1979 (Table 5). Physicians are last in this respect because most of the child abuse here is relatively benign, and parents are not bringing children in for that reason. More likely a neighbor or a teacher will report.

TABLE 5

**Child Abuse Olmsted County (1979)
Reporting Party**

Victim	13
School Personnel	12
Parent/Substitute	11
Friend/Neighbor	6
Hospital/Clinic/Physician	2

Table 6 shows the factors contributing to abuse found in the county.

Just a few quick tips (Table 7). Suspected abuse or neglect of any pre-walking infant injured in or about the home should be reported because they should not be getting into such serious difficulty accidentally. We

TABLE 6

**Child Abuse Olmsted County (1979)
Contributing Factors**

Broken Family/ Family Discord	38/59
Intolerance to Child's Disobedience	18
Authoritarian Discipline	13
Alcohol Dependence	11
Loss of Control During Discipline	10
Spouse Abuse	10
Parental History of Abuse As a Child	10
Lack of Parenting Skills	8
Insufficient Income	5
Continuous Child Care Responsibility	5

TABLE 7

Quick Tips:

- Suspect abuse/neglect in any infant injured in or about the home.
- Suspect abuse when history is inconsistent or incompatible with exam.
- Accept parent's story at face value while probing for information.
- Obtain separate history from child over age three if abuse/neglect suspected.
- Hospitalize child if abuse is suspected.
- Perform complete physical inspection, searching for additional evidence of injury.

recommend hospitalization whenever an abused child is injured, regardless of age. It is much easier to carry out an evaluation on the ward than in the emergency room. The younger child is more vulnerable to really serious injury. Older kids with bruises can be followed on an outpatient basis.

Dr. Bianco: What is the prognosis in general for these families?

Dr. Hick: It is difficult to generalize about that. There is evidence that we are preventing re-injury, however, the long-term psychological outcome is less clear. For infants who are victims of fracture, the outlook is probably not good. Often the child is not really wanted, and after being removed from the home, the parents must make some sincere effort to take an interest before that child is returned. The termination of parental rights is often the outcome otherwise.

Dr. Peterson: Is there any evidence of where an investigation has become so abusive and aggressive that it becomes harassing?

Mrs. Duffney: Yes, but it is not as frequent as the media implies. Any kind of reporting is stressful for the families and must be done very carefully. Most investigations are carried out by experienced people who are trying to resolve very difficult situation, and the majority are done in a very humane fashion.

Dr. Rudolph A. Klassen: Another problem seen particularly in the farming community is the over-responsibility that parents give their kids. They have a 10-year-old driving trucks and tractors and little children riding on the tractor. They don't realize this is a gross form of neglect and a major cause of accidents. It is a problem of educating the parents to prevent these sorts of accidents.

Dr. Kurland: In the confirmed case of child abuse, are we obligated to examine the other children in the family?

Dr. Hick: Yes, there is an obligation even in a case of suspicion and it is a good idea. In 1979 in Olmsted County, there were 101 families and 114 actual cases of suspected abuse. Obviously, in some families more than one child is involved. It is a common tendency for the first child to be more vulnerable because of the parents' inexperience, the possibility that the child is not planned, or the added stress of subsequent children.

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Drug Profiles

Propranolol-Use in the Elderly

GEORGE R. BAILIE, BSc MSc MPS*

Angina pectoris and hypertension are highly prevalent in the geriatric population. Propranolol, a non-selective beta-blocking agent, is widely used in the treatment of these conditions. The kinetics of propranolol with respect to the elderly are considered below.

Absorption

Well absorbed after oral administration, although bioavailability is variable: 15-70%^{1,2}. The bioavailability of propranolol is increased with food³. Peak plasma levels occur 1½-2 hours after oral administration⁴. Therapeutic plasma concentration: 50-150 ng/ml⁵. The minimum level for beta receptor inhibition is 25-50 ng/ml.

Distribution

Propranolol is distributed in the lungs, and to a lesser extent in the brain, liver, kidney and heart (lipophilic agent, pKa = 10)⁶. The apparent volume of distribution (Vd) is approximately 2.5-4.0 L/kg⁷. Vd is increased in liver disease. There is extensive plasma protein binding: 90-96%⁸, mostly to albumin and α-1-glycoprotein.

Metabolism

Propranolol is primarily eliminated by hepatic clearance⁴ (0.7 L/kg/hr), and undergoes extensive first-pass metabolism — the extraction ratio is greater than 0.7⁹, which explains the low oral bioavailability. Decreased hepatic blood flow decreases hepatic clearance, as in congestive heart failure (CHF) and advancing age.

Eight metabolites have been recovered from the urine, one of which, 4-hydroxy-propranolol, has a blocking action similar to that of the parent drug¹⁰. The hepatic metabolism of propranolol is a high affinity binding process demonstrating saturable characteristics.

Renal Elimination

Less than 2% of orally administered propranolol is excreted unchanged in the urine. There is a slightly decreased clearance in renal failure.

Half-Life

The plasma half-life in man is approximately 2.5-3.0 hours⁴, though the pharmacological effect is considerably longer than this.

Interactions/Contraindications

Propranolol can be used safely with the other antihypertensive agents¹². It should be used with caution in insulin-dependent or sulphonylurea-dependent diabetes mellitus, since propranolol augments the hypoglycemic effect of such agents and masks the tachycardia that is an important clinical sign of developing hypoglycemia¹⁰. Patients with CHF have a decreased clearance. Propranolol may cause excessive bradycardia when co-administered with digoxin⁶ and calcium antagonists. Care should be taken with concurrent use of antiasthmatic agents¹², since propranolol may precipitate asthma.

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Dosage Considerations

The daily dosage range for the treatment of hypertension is 40-480 mg¹³. Despite the short plasma half-life, propranolol may be taken twice daily (there are some suggestions which would indicate a once-per-day dosage regimen¹⁴). Treatment can be instituted with 20-80 mg twice daily, and can be successively increased up to maximal doses¹³. The maximal antihypertensive effect of a given dose occurs in two to four weeks¹⁴.

The treatment of angina pectoris requires more frequent dosing of propranolol. Frequently, treatment is begun with 20 mg four or more times daily, and the dose doubled every few days until the end-point is reached (eg. decreased heart rate, nausea, diarrhea). The effective dose ranges from 80-2000 mg per day, the majority of patients requiring 160-320 mg per day¹⁵.

Clinical Comments

Propranolol is a non-selective beta-receptor blocker. It exerts negative inotropic and chronotropic effects, and decreases cardiac output and afterload. The gradual reduction in blood pressure (systolic and diastolic) is thought to be due to the gradual loss of the reflex increase in peripheral resistance in response to the decrease in cardiac output. Propranolol is also thought to block the sympathetic regulation of renin release in response to a person assuming the upright posture.

Propranolol is commonly used in combination with thiazide diuretics for the treatment of moderate hypertension. Due to its anxiolytic action, propranolol may be of benefit in anxious patients with predominantly somatic complaints such as tremor, palpitations and hyperventilation. Despite its slow absorption in the elderly patient, it can be used safely with other pharmacological agents commonly used in the geriatric population, such as tricyclic antidepressants and phenothiazines.

Propranolol is bound extensively to α -1-glycoproteins. Since this protein is significantly elevated post-myocardial infarction (MI) the dosage of propranolol may require to be increased after an MI.

Patients exhibit widely differing sensitivities to the therapeutic effects of propranolol, since its antihypertensive effect is related to its plasma concentration, not the dose. Dosing must therefore be tailored for each patient.

Adverse Effects

Initiation of propranolol therapy by the oral route should be slow and cautious, since adverse effects usually occur early in treatment. Adverse effects are not usually dose-dependent, and often occur with small initial doses¹⁶. Such side-effects are usually not serious and usually disappear on continued drug therapy. They include gastrointestinal disturbances (nausea, vomiting, diarrhea), syncope and neurological disturbances (hallucinations, insomnia, depression). Hypoglycemia and sodium retention are probably not serious except in underlying diabetes mellitus and CHF.

Dose related side-effects include progressive decreases in blood pressure and heart rate, leading to exacerbation of angina, CHF, shock and complete heart block¹⁵. Management of side-effects involves the reduction in dosage and/or the change to another beta-blocker, such as atenolol, which is cardio-selective.

Withdrawal

Withdrawal of propranolol therapy should be slow, tapering off over a period of several days to prevent a potentially life-threatening myocardial ischemic episode¹⁷.

¹ See references, page 502

Preliminary Results of Minnesota Colon Cancer Control Survey

Fact or Fable?

H. CHARLES WALKER, JR., M.D.;* SAMUEL B. FEINBERG, M.D.;† MATHIS P. FRICK, M.D.;*
and EUGENE GEDGAUDAS, M.D.††

The preliminary results of the Minnesota Colon Cancer Control Survey (CCCS) have been interpreted widely as a blanket indictment of gastrointestinal radiology. We suggest lack of control has resulted in seemingly biased data, and ask that the CCCS files be reviewed.

GILBERTSEN AND ASSOCIATES preliminary results of their 10-year University of Minnesota Colon Cancer Control Survey (CCCS)^{1,2} claimed that conventional barium enema (BE) missed 1/3 of the carcinomas and 2/3 of the polyps detected by fiber-optic colonoscopy (CS). Such results, if verified, obviously would have enormous clinical-radiologic significance. The purpose of this paper is to evaluate the report.

Since the CCCS study protocol did not include radiologists in planning, nor in setting standards for preparation, order, and type of exam to be performed, selection of personnel, staff, as well as method of classification of polyps, the report requires review to accurately select the order and type of exam or exams most likely to detect early colon carcinomas.

Minnesota Colon Cancer Control Survey

This study was originally designed to assess occult-blood screening for colon cancer.³ The objective of the study was to detect cancer of the colon early enough to affect the outcome. If the study design was also to compare the BE and CS, this was unannounced and no steps were taken to set up a comparison protocol. Experienced colonoscopists were recruited from the Veterans Administration Medical Center, the private sector, and as well, from the University. In addition, Hemoccult tests had variable sensitivity with unpredictable results. This lack of control has resulted in seemingly biased data.

Of the participants who had Hemoccult positive stools and completed the protocol through December 31, 1977, 11.1% chose another community diagnostic service.³ The published report does not state pro-

portionately how many BE examinations or how many CS were performed at other institutions. Morson stressed the identification of manageable populations of persons who are at increased risk from cancer of the large bowel as the the only practical approach at the present time.⁴

In the time period of 1976-1978 the Hemoccult slides were just being introduced in large trials of mass screening for colo-rectal cancer. There were variations in the sensitivity of the HO slide test. It became too sensitive with rehydration. Later the HO II slide test was introduced, which according to some had the right sensitivity.^{5,6} In one study the incidence of positivity varied from 0.23% to 6.8%.⁷ The variable sensitivity of the Hemoccult has resulted in a widely fluctuating fluoroscopy load.

In 1978, the protocol was changed to include BEs only after colonoscopy had failed as evaluated by the colonoscopist. Soon thereafter the standard BE was discontinued in favor of the primary double contrast enema (DCE).

Even though the colonoscopist has the BE findings available at the time of the exam, the reverse was not the case for the fluoroscopist. Currently half of the DCE are performed on the same day as the failed CS, resulting in air distended intestinal tract which may, or may not, have associated occult iatrogenic mural trauma.⁸ DCE examinations done under these conditions are not optimal. We cannot, under these circumstances, precede the examination by our customary 2,000 ml cleansing enema in the radiology department. They often have stool, if referred late in the day.

Polyps: Precancerous Lesion or Mucosal Excrescences?

In the CCCS's published articles there are claims that

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the BE missed two-thirds of the polyps. Nowhere do the articles define the histology or size of the polyps. Morson has repeatedly emphasized the word "polyp" demands a qualifying adjective defining its histology.^{4,9} Polyp size and morphology help determine the likely presence of malignancy, the need for prompt and type of resection, the frequency, time and type of follow up.^{10,11} All these factors have great economic impact. Colonoscopy may prove superior to the DCE in detecting lesions less than 5 millimeters in size, or perhaps even those 5 to 9 millimeters in size. Invasive carcinoma in polyps of this size is extremely unusual. Morson has estimated the risk of cancer in adenomatous polyp or villous adenoma under one centimeter is only about one in a hundred.⁴

In a review of 700 polyps removed by CS at the University of Minnesota Hospitals, 13 of 25 polyps with invasive carcinoma were between 1 — 1.5 cm in

size, but *none* reported in polyps less than 1 cm in size.¹²

We suggest the CCCS files should be reviewed to determine the size range and histology of the "polyps" recorded as radiologic misses. Likewise, the colonoscopy misses, and failures in so far as completion, should be reviewed. In general terms colonoscopy and DCE have a relative miss rate of 5%, as based on national standards. Maruyama had a false negative colonoscopy rate of 5½%, confirmed by repeat DCE. In this study, Maruyama's radiologic false negative rate for polyps and carcinoma was only 1.4%.¹³

Thus, we support the principle of improving the early detection rate of colon cancer by any means which can be documented by reliable and reproducible screening methods. To date in our opinion, the CCCS has not served this purpose.

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Award Recipients "The Physician As Artist" May 27-28, 1982 Radisson South Hotel

One of the new features of this year's Annual Meeting was a physicians' art show. We were quite pleased with the participation and would like to announce the following award recipients:

First Place — Ferdinand Zinter, M.D., Minneapolis (photography)
Second Place — Dorothy Bernstein, M.D., Minneapolis (sculpture)
Third Place — Sunanda Apte-Kakade, M.D., St. Paul (sand painting)
Honorable Mention — Yale Kanter, M.D., St. Paul
(photography)
Joseph Leek, M.D., Duluth
(textile with original design)
Claus Pierach, M.D., Minneapolis
(mixed media)
Eric Taswell, Minneapolis
(charcoal drawing)

Farrell Stiegler, M.D.
Chairman, Art Show Steering Committee

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The Physician's Sleep Glossary

Some common sleep laboratory terms

poly·som·no·graph. An instrument which simultaneously records by electrodes physiological variables during sleep—for example, brain activity (EEG), eye movements (EOG), muscle tone (EMG) and other electrophysiological variables. These readings indicate precisely when patients fall asleep, how many wake periods they experience, the quality of sleep and the duration of sleep.

sleep la·ten·cy. The period of time measured from "lights out," or bedtime, to the commencement or onset of sleep.

wake time af·ter sleep on·set. Intervals of time spent awake between onset of sleep and the end of the sleep period. The polysomnograph registers the length and frequency of the intervals.

to·tal sleep time. The amount of time actually spent in sleeping. This is estimated by subtracting wake times from the period encompassed by the onset and the termination of sleep.¹

REM/NREM. 1. REM, or rapid eye movement, sleep is "active"—characterized by increased metabolic rates, elevated temperature and arousal-type EEG patterns. 2. NREM, or non-rapid eye movement, sleep represents "quiet" sleep stages. There are four distinct stages of NREM sleep.²

re·bound in·som·nia. A statistically significant worsening of sleep compared to baseline on the nights immediately following discontinuation of sleep medication.³

Efficacy objectively demonstrated in the sleep laboratory—the most valid environment for measuring hypnotic efficacy.

In numerous sleep laboratory investigations patients fell asleep sooner, slept longer and woke up less during the night³⁻¹² with

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Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, light-headedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

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Echoes from Our Past

JACK D. KEY, M.A., M.S.*

Oh Lard . . .!

Nineteenth century neurologist William A. Hammond in a letter¹ to the editor of the *American Journal of the Medical Sciences* commented on the use of lard as an antidote for poisoning. He wrote:

I must tell you that I have tried Dr. Pindel's antidote to strychnia — lard. I gave two grains of the poison to one dog, without the antidote; and two to another, with the addition of a pint and a half of melted lard . . . the *latter* died in four hours, and the *former* — miserable, worthless cur, who doubtless was too mean to die — is still running about in the finest possible state of health. So much for lard. We are of the opinion here that strychnia is quite harmless, unless lard is indulged in.

Reference

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A Unique Source for Medical Information

The following reply¹ was returned in response to a circular letter soliciting subscriptions to a certain medical journal:

Faribault, Minn.

Your Copy of the ——— Jurnal come, and the letter to ——— askin me to send fifty cens and git it fur a year. I don't nead no jurnals. When I git a tuff case I go off inter sum secrit plase and tell the lord all about it and wate for him to put inter my minde what ter do. That's bettern jurnals and syklopedes and such. If we hed more lord trustin docters and less colleges weed fare better. The lord noes morn all the doctors and if we go to him fur noledge it ill be bettenr jurnals.

Fraternally in the lord,
A Christian Doctor.

P.S. ——— I've practist medisn morn fifty years. Yore ken publish this letter if you want ter.

*Librarian, Mayo Clinic, Rochester, Minnesota

Reference

1. Maritime Medical News. 6:431, November, 1894.

Minnesota Department of Health

Human Exposure to Animal Rabies in Minnesota 1971-1980

ROBERT A. SIEM, Ph.D.*†; C. DWAYNE MORSE, DR. P.H.*‡; and
DAVID W. STICKLE, DR. P.H.*‡‡

The Minnesota State Department of Health reported rabies in 422 animals for the years 1971-1980 in each instance involving human contact in one form or another. One half of the total positive animals were either cows (28%) or skunks (22%). Dogs (17%) and cats (16%) made up two thirds of the remainder. Rabid animals are not limited to any specific area within the state and each human exposure to a possibly rabid animal should be judged on its individual merit.

IN AN EARLIER ISSUE of this journal, rabies pathophysiology, method of transmission, prevalence, epidemiology, criteria for testing animals, preparation and shipment of specimens, and the prevention of rabies were discussed.¹ The present report is limited to a brief history of rabies testing in Minnesota and, specifically, to those animals involving human exposure that were submitted to the Minnesota Department of Health (MDH) for the years 1971 through 1980.

The study of rabid animals by personnel of the MDH developed in stages.² A Veterinary Unit (Department of Infectious Diseases of Animals) was formed in 1887, followed in 1896 by the formation of a Bacteriology Department. The latter was headed by Dr. Frank Wesbrook and assumed the task of studying animals where there had been human exposure. Suspected animal rabies cases without human exposure were monitored by the Veterinary Unit through 1903 at which time the legislature transferred veterinary functions to a separate entity, the Livestock Sanitary Board (LSB)§.

Dr. Wesbrook and his colleagues continued rabies studies until 1907 at which time their responsibility was delegated to a newly created *Pasteur Institute*, housed in facilities adjacent to MDH. The testing of animals with human exposure, consultation on rabies prophylaxis and dispensing of vaccine and serum supplies continued as functions of the Institute until 1921. In that year the Institute was terminated and

again the responsibility of testing suspect rabid animals was relegated to the Bacteriology Department. Subsequent reorganization of functions within the Department led to the formation of a virus laboratory which until the present day has had the responsibility of processing and reporting all data relative to rabid animals in Minnesota involving reported human contacts.

The LSB continued testing of animals with no human exposure from 1903 to approximately 1912 at which time they requested that these services be transferred to the facilities of the Minnesota Veterinary Diagnostic Laboratories (VDL). The latter facility, located on the St. Paul Campus of the University of Minnesota, has since then admirably complemented and added to our information on the rabies problem as it exists in our state.

The earliest studies were by microscopic examination of suspect brain material looking for the signs of disease and, needless to say, were fraught with difficulties of specific diagnosis. The discovery of Negri bodies (1903)³ and rabbit inoculations of suspect brain or related materials in 1925 (MDH file data) facilitated diagnosis. The advent of Seller's stain in 1927⁴ and the substitution of mice for rabbit inoculations in 1938 (MDH file data) added to the efficiency of diagnosis. In 1962 the MDH began to assess staining procedures utilizing Seller's, William's (modified Seller's) and fluorescent tagged specific rabies antibody (FA). The latter became the method of choice and, following comparative studies through approximately 1970 with the William's stain, became the only microscopic assay used for rabies diagnosis.

MDH file data for the years 1921 through 1950 showed continued and increased rabies awareness on

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§Renamed in a recent legislative session: Board of Animal Health.

the part of physicians, veterinarians and concerned public health officials in Minnesota. In that period with the continuing human population influx and apparent northern to western dispersion of animal reservoirs of rabies, 751 animals were tested. The trends continued as shown by 4,781 animals submitted and tested through the years 1951 through 1960, reaching an apparent plateau with 13,212 animals submitted for the years 1961 through 1970.

1971-1980

Animals submitted to the MDH during the 1971-1980 period totalled 12,917 having, in each instance, some indication of human contact or exposure. Table 1 shows the numbers of the most common animals testing positive for rabies compared to the total number received; a similar ratio is indicated for those animals less frequently observed. One half of the total positive animals during the years 1971 through 1980 were either cows (28%) or skunks (22%). Dogs (17%) and cats (16%) made up two thirds of the remainder.

Rabid Rabbits

Testing for rabies in rabbits is discouraged unless circumstances warrant, i.e., an unusual history of possible exposure and aberrant aggressive behavior. In 1980 a rabbit that fit the picture of a possible candidate for rabies was submitted to the VDL on the St. Paul Campus of the University of Minnesota.⁵ This pet was apparently allowed to roam free at night and one evening, approximately one month prior to our receipt of the animal for confirmation, the pet's owner noticed the unmistakable odor of a skunk on the animal with signs of a fight. Human exposure occurred during efforts to placate and soothe the animal. This rabbit gradually became paralyzed and the disease progressed to a stage where the owner wanted the pet sacrificed and examined. Preliminary results from the VDL indicated that brain material was positive for rabies. Submission of a small portion of the rabbit's brain to the MDH sufficed to corroborate indications of a *rabid rabbit*. Again we must emphasize that this was a very

Table 1
Human Contacts with Suspected Rabid Animals in Minnesota 1971-1980
Ratio of Rabid Animals Over Total Examined

Year	Bovine	Skunk	Cat	Dog	Bat	Horse	Other
1971	14/56	11/31	9/399	9/259	3/111	2/5	weasel, 1/2
1972	22/73	13/30	6/314	13/263	4/90	5/9	badger, 1/2; raccoon 1/33
1973	37/113	27/48	7/356	7/222	2/82	3/14	fox, 1/25; goat, 1/1
1974	9/67	12/35	8/315	2/218	9/89	1/11	fox, 1/15; badger, 1/1
1975	6/65	4/26	5/445	4/260	5/105	2/5	racoon, 1/34; human, 1/1
1976	5/47	7/28	1/386	6/281	2/85	2/6	fox, 1/11
1977	6/40	11/38	8/387	4/283	3/113	1/10	goat, 1/4
1978	10/62	2/39	7/444	3/290	2/69	0/6	sheep, 1/1
1979	9/62	6/42	4/356	8/298	1/104	1/14	pig, 1/2
1980	10/71	7/44	6/390	10/298	3/95	1/11	rabbit, 1/18; pig, 1/3
TOTALS	128/656	100/360	61/3792	66/2672	34/943	18/91	

Table 2
Totals of Animals Submitted to MDH for Rabies Examinations 1971-1980
Rodents, Insectivores and Lagomorphs Compared With
Other Species by Count and Percentage

Year	Rodents, Insectivores & Lagomorphs		All Other Species		% Minor* to Total
	No. Submitted	No. Positive	No. Submitted	No. Positive	
1971	491	0	961	49	33.8
1972	419	0	874	65	32.4
1973	482	0	987	85	32.8
1974	440	0	856	43	34.0
1975	360	0	994	28	26.6
1976	384	0	927	24	29.3
1977	217	0	933	34	18.9
1978	189	0	1028	25	15.5
1979	139	0	983	30	12.4
1980	142	1 (rabbit)	1111	39	11.3

*Rodents, insectivores and lagomorphs

unusual situation and pointedly portrays the need to carefully assess all aspects of animal exposure to humans if rabies is suspected.

Of considerable concern are the numbers of animals examined unnecessarily where the incidence of rabies is almost nil. The MDH has since 1976 directed a form letter to submitters of rodents (squirrels, gophers, etc), insectivores (moles and shrews) and lagomorphs (rabbits and hares) advising them that rabies is virtually non-existent in these animals. This letter has met with considerable acceptance on the part of all concerned although we must continue to be alert for unusual circumstances as borne out in the previous paragraph. Table 2 shows the number of animals submitted for each year categorized as to minor animals (rodents, insectivores and lagomorphs) submitted in relation to all other species tested, and the total number of animals found to be positive for rabies. The last column shows the decline in percentage of minor animals submitted for rabies examination.

Rodents, Insectivores and Lagomorphs

The implications of testing rodents, insectivores and lagomorphs become of economic concern when one considers that microscopic examinations of brain material for animals in these categories cost \$12-14 per specimen. During 1980 approximately 250 fewer animals were submitted for testing based on experience of earlier years. An important adjunct is that we then can direct our efforts and resources to those situations of greater concern and importance to the medical community and the public. We appreciate very much the deep anxiety of parents and relatives of individuals bitten or exposed to animals in these categories. Requests by all those concerned are carefully considered and sometimes animal tests are performed to allay hysteria rather than for strictly scientific reasons.

FA versus Mouse Inoculation

Of interest are experiences utilizing FA techniques in microscopic studies of potentially rabid animals. Review of laboratory results from 1971 through 1975 showed 25 microscopic examinations which were considered negative by FA had subsequent intracerebral mouse inoculation of this same brain material that proved infectious to these animals. Corroboration of rabies in the dead or symptomatic mice was confirmed by FA examination of their brain material. In the period from 1976 through 1980, six animals were tested negative by FA and positive by mouse inoculation; only one was missed in 1980. This suggests that the quality of reagents and the expertise

of microscopists has improved considerably. A decision should be made concerning the value of corroborative mouse inoculations on major animals testing negative by FA (our present policy). In a recent poll⁶, 23 of 40+ state laboratories do not use mouse inoculations except under unusual circumstances or where the FA readings are questionable (lack of brain material, etc.).

Rabid Animals by County in Minnesota (1971-1980)

Table 3 lists by county the incidence of rabid animals with human contact for the years 1971 through 1980. The six most common species are tabulated by numbers followed in the same space by the last two digits of the last year a rabid animal of that species was reported.

Compendium

The distribution of rabid animals with human exposure in Minnesota shows an apparent correlation to human demographic data reflecting a population shift to the west and north. Rabid animals, however, are not limited to any specific geographic area within the state, and each human exposure to a possibly rabid animal should be judged on its individual merit. This has also been demonstrated by data furnished by Dr. Harry Olson (Board of Animal Health) which showed that there were 282 Minnesota animals diagnosed as having rabies in 1980. Laboratories contributing to the accumulation of this data were the VDL and state laboratories in Brookings, South Dakota, Fargo and Grand Forks, North Dakota. It should be stressed that the chance for human and animal exposure to such a reservoir makes it imperative to be constantly alert.

Seasonal differences are slight as shown by monthly tabulation for the years 1971-1980; the average was 33 per month with low numbers in February and May (average 22) and high numbers in August and October (average 41).

As of June 1, 1981, rabies testing by the VDL and the MDH laboratories was combined. The majority of animals are first submitted (for brain removal) to the VDL followed by transfer to the MDH for microscopic and corroborative study.

For information on rabies, its control, pre and post exposure treatment, submitting specimens for analysis, etc., contact the MDH at the following telephone numbers:

(612) 296-5414 (24 hour service)

(612) 296-5254 (during working hours)

ANIMAL RABIES IN MINNESOTA — SIEM ET AL.

Table 3
Incidence of Rabid Animals with Human Contact, by County, 1971-1980

County	Bovine	Skunk	Dog	Cat	Bat	Horse	Other
Becker	2 80*	6 78	1 77	2 80			
Benton			1 79				
Big Stone	1 72			1 77			
Blue Earth	2 74	1 73		1 77			
Brown	1 76	1 76		1 72		1 72	
Carver	1 73	1 80			1 75		
Chippewa		2 74					
Clay	2 73	2 79		1 71		1 72	
Clearwater	2 73						
Cottonwood	1 76	2 77					
Crow Wing		1 71	1 80		1 77		
Dakota		2 76	1 77		2 78	1 75	
Dodge	2 78	2 75	4 79	3 76			
Douglas	3 75	1 74		1 75			
Faribault	1 72		1 80	1 73			
Fillmore	17 80	5 76	5 80	2 73			
Freeborn	5 80						
Goodhue	2 80	1 74	6 75	1 80		2 72	
Grant	1 71	1 74					fox 74
Hennepin		5 75	3 80	2 79	11 80		
Houston	2 80	1 80					badger 74
Hubbard					1 80		
Isanti					1 76		
Itasca							weasel 71
Jackson			1 71				
Kandiyohi	3 76	1 77	4 78	3 77	2 75	2 77	
Lac Qui Parle	1 72						
Le Sueur		1 76					raccoon 75
Lyon	1 75	2 79		1 78			
Mahnomen			1 79				
Martin	3 76	3 80					
McLeod	3 78	3 73	1 80	2 74			
Meeker	2 72	1 72		1 78		1 74	sheep 78
Mille Lacs	2 76	1 74		2 78		1 73	
Morrison	5 80	1 73	1 79	2 76			
Mower	4 75	2 80	1 80	1 75			
Murray				1 77			
Nicollet	1 78	1 71	3 79	1 71			
Nobles		2 79	1 72				
Norman	1 78	1 72		1 79			pig 80
Olmsted	12 79	1 72	1 80	3 79	1 72	1 79	pig 79
Otter Tail	6 78	8 80	1 77	2 80			goat 73
Pennington	4 77	2 74		1 73			fox 73
Polk	1 73					1 80	goat 77
Pope	3 79			1 71			
Ramsey		1 72	1 77		3 74		
Red Lake	1 80	1 77					
Redwood	1 72						
Renville		1 73				1 75	
Rice	2 77	1 74	1 75	1 74			
Roseau	2 79	3 75	1 80	4 80		1 76	human 75
Scott			2 77		2 77		
Sherburne		1 79					
Sibley		1 77	1 76		1 72		raccoon 72
Stearns	5 78	5 77	4 79	1 79	1 74	1 71	
Steele	2 73	3 74	2 80	2 78			

TABLE 3 (Continued)

Stevens	1 80	2 77		1 77		
St. Louis					1 80	
Swift	1 74	3 79		1 78	1 75	1 73
Todd	2 73	2 79	2 80		2 72	
Traverse		1 77	1 72	1 74		2 72
Wabasha	1 73			1 73		1 73
Wadena		1 71	3 79	2 77		
Waseca	4 78		1 72		1 75	
Washington	1 78					
Wilkin	1 80	3 78	1 73	2 77		badger 72
Winona	4 75	3 74	2 72	2 72	2 79	
Wright			1 72	3 80		rabbit 80
Yellow Medicine		2 73	1 71			fox 76

*Last two digits of year

Supplement

Data on the effectiveness of Human Diploid Cell Vaccine (HDCV), reported from the Centers for Disease Control (CDC), Atlanta, Georgia, shows that 100% of those vaccinated (510/510) had protective antibody levels following pre-exposure treatment and, 99.9% (1,229/1,300) had protective antibody levels following post-exposure treatment. In view of these findings the Public Health Service "Immunization Practices Advisory Committee" sees no reason to continue routine serologic testing of persons who

receive the recommended pre-exposure or post-exposure treatment regimens of HDCV. Therefore, effective November 30, 1981, CDC and the *Minnesota Department of Health* will no longer test or accept serum for rabies antibody analysis except in persons vaccinated with Duck Embryo Vaccine (DEV) or who are suspect of being immunocompromised.

Acknowledgement

The following persons reviewed earlier drafts of this manuscript: Andrew Dean, M.D., Michael Osterholm, Ph.D., Stan Hendricks, D.V.M.

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6. Data to be published.

Cover Photograph

"Fireweed"

Webster's Dictionary lists the "Fireweed" as a troublesome weed growing in clearings or burned districts. However, this month's cover shows the brilliance of this particular weed as it quietly grows in these clearings. Troublesome or not it is beautiful.

Dr. George Nielsen Rysgaard, a family practitioner practicing in Northfield, took the cover slide while on vacation with his family at Comox, Vancouver Island, British Columbia, Canada. He found the Fireweed on the Shores of the Campbell River. He used a Nikon Camera, 50 mm lens, and Kodachrome 64 film.

Dr. Rysgaard told the editors he has been a natural history photographer for many years, and he and his family travel a lot for the purpose of photographing nature at its best.

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Death and Decision Making among Minnesota Physicians

ROBERT WM. BLUM, M.D., Ph.D.*

A random sample of Minnesota physicians were surveyed as to their definitions of clinical death and willingness to override wishes of the reference groups of patient, family, hospital and community. Sixty-five percent defined clinical death to be brain death. For each of the reference groups, the majority of respondents indicated that there were situations warranting the physician's overriding those wishes; however, most physicians indicated that if the patient were competent to decide, he or she should have the final say.

CURRENTLY, WE SIT at a crossroads within medicine — on one side is the *industrial revolution of medicine*, with the proliferation and refinement of medical technology; the second is a growing popular concern for the *quality, dignity and meaningfulness of life*. The physician's role is central to the successful integration of technology and humanism.

The current study was undertaken to understand characteristics of Minnesota physicians which influence how they perceive critical care decisions are made. Critical care decisions were defined as those which govern: whether or not to resuscitate, emergency triage in disaster situations, admission to intensive care unit (in case of 100% occupancy), abortion, referral of critically ill patients to *outside* medical centers, use of extraordinary life support procedures, and finally, termination of life support.

This paper will focus on Minnesota physicians' definitions of death and their willingness to abide by medical decisions regarding the use and termination of life support which run contrary to either the choice of the patient, his family, the hospital, or the community itself.

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This study was supported in part from a grant from the University of Minnesota's Center for Health Services Research and the Bush Foundation's Leadership Fellowship Program.

The author wishes to thank Michael Resnick, Theodor Litman and Vernon Weekworth for assistance with questionnaire design, methodology and data analysis.

Methodology

The study used a thirty-item mailed questionnaire including multiple choice, Likert and Gutmann scaling,¹ semi-structured and open-ended questions. The physicians sample was derived from a master list of the Minnesota Board of Medical Examiners representing all licensed physicians in the state of Minnesota (N=5,500). Ten percent of all urban and 25% of all rural physicians were randomly sampled, for a total study population of 803. After an initial and two follow up mailings, a final response rate of 42% (N=337) was achieved. An additional 8% either refused participation or were not located. The remainder of the study population were non-respondents. For the purposes of this paper a usable sample of 287 physicians was derived.

Data were analyzed based upon demographic characteristics of physician respondents including age, size of practice community, specialty, amount of post-graduate training, religion and extent of religious practice.

Findings

In response to whether they considered brain death or cardiopulmonary arrest as the main indicator of clinical death, 65% of the physicians responding considered brain death the predominant definition,

TABLE 1

Physician Response to What Constitutes Clinical Death (N = 287)

Definition of Clinical Death	Response of Physician Sample	
	Frequency	Percent
Brain death	185	63.6
Cardiopulmonary arrest	25	8.6
Both brain death and cardiopulmonary arrest	7	2.3
Either brain death or cardiopulmonary arrest	18	6.2
No response	52	19.3
Total	287	100.0

while only 10% saw cardiopulmonary arrest as a necessary component of clinical death (Table 1).

Further analysis indicated that those holding the more traditional definition of cardiopulmonary death were frequently older, from smaller, rural and semi-rural communities ($p < .01$) and more frequently practiced in solo situations ($p < .05$) than those who have adopted a brain death definition. What becomes evident is irrespective of age, practice setting, or specialty, few physicians in the state of Minnesota concur with what currently remains the legal definition of mortality, namely, cardiopulmonary cessation.

Physicians were asked whether there are times when termination of life support is justified; and while 4% indicated that there was no situation under which life support termination was permissible, 94% answered in the affirmative (Table 2).

When asked to clarify under what circumstances such termination of life support was justified, physicians indicated three situations: brain death (47%), terminal or end-stage illness (21%), and when life is sustainable only with artificial support (13%). While the first situation, brain death, is in keeping with the predominant definition of mortality advanced by Minnesota physicians, the other two situations were frequently categorized as *the hopeless situation*, that of a life which can be sustained only by mechanical means. Such a notion lies outside any traditional definition of physiologic death and approaches the concept of *social death*.²

Furthermore, physicians were asked under which situations, if any, would they be willing to override the wishes of the patient, family, hospital regulations, or the community norms of medical practice.

Sixty-five percent of the physicians sampled indicated that they would override the wishes of patients, especially when depressed, suicidal, or otherwise unable to assess their condition (Table 3). While expressing a willingness to do so, many physicians (less than 1%) indicated they would sustain

physiologic life irrespective of medical conditions and patient wishes. The predominant attitude of most Minnesota physicians is summarized by an elderly rural physician who said, "Customs change. In days past, good physicians acting in good faith halted their efforts to sustain life (not without self-doubt, I'm sure)".

Seventy percent of respondents said there were situations when it would be appropriate to countermand the wishes of the family (Table 3). However, most respondents indicated that for the majority of situations, family wishes should be honored. Situations considered justifiable for overriding family wishes included: (1) Severe, overwhelming, irreversible illness or brain death, where the family wished therapy to be continued (27.8%). (2) Potentially reversible situations where the family wished therapy to be discontinued (21.5%). (3) Situations where the physician considered the family incompetent to decide (16.2%). (4) When the family wishes disagree with those of the patient (12.6%).

The prevailing attitude of respondents was as the patient's advocate, especially at times when they cannot represent themselves. One physician from a large, urban institution commented, "If the patient is fully cognizant of the implications of the decision and is not psychotic, his/her decision regarding his/her care is final. However, if the patient is unable to make this decision, the physician is the patient's advocate and must, therefore, act accordingly, even if contrary to the desire of the family."

Furthermore, 73% of physicians indicated that they would override hospital policy when such policy came into conflict with the patient's interest (Table 3). The major concern expressed by 22% of the respondents was that such policies are not sensitive to the needs of the individual situation. Other reasons expressed by overriding hospital policy included conflict between such policies and the *professional judgment* of physicians or when hospital policy ran counter to ethical considerations. Regarding *profes-*

TABLE 2
Physician Response to Termination of Life Support (N = 287)

Attitude Toward Termination of Life Support	Response of Physician Sample	
Termination of life support is justifiable	268	93.4%
Termination of life support is not justifiable	11	3.8
Don't know	1	0.4
No Response	7	2.4
Total	287	100.0

sional judgment there appeared to be a core of respondents who considered their own ethical and professional perspective to be the deciding factor even though overriding the wishes of patient, family, hospital, or community. While this perspective was the minority, it represented 9% of physicians sampled.

Finally, physicians responded to questions dealing with their willingness to override community practice norms; 70% of physician respondents expressed willingness to take such action, especially when practice norms conflicted with either the needs of the individual patient or with medical judgment (Table 3). It is interesting to note that only two physicians discussed issues of malpractice in conjunction with their practice policy regarding community norms. When the chief administrative officers of Minnesota hospitals were asked a similar question, over 70% saw malpractice to be a concern ($p < .001$).

Discussion

The finding that 65% of Minnesota physicians adopted a brain death definition of clinical death is consistent with Crane³ who found that 75% of a national sample of physicians had adopted brain death as clinical death. The predominant notion of brain death is derived from the Harvard criteria:⁴ (1) unresponsivity and unresponsivity, (2) no movement or breathing, (3) no reflexes, and (4) flat electroencephalogram (which is confirmatory, but not necessary).

While this definition has been modified over the past decade,⁵⁻⁸ and the majority of physicians both nationally and within Minnesota have adopted such a clinical definition of death, state legislatures have lagged behind in legalizing such definitions. As brain death becomes increasingly accepted by the medical community, such a formulation of death comes in conflict with the laws of many states. As Anonson⁹ contends, this leaves physicians in a precarious position without either legislative or judicial direction.

Passive euthanasia is used here to mean the withholding, when available, of therapeutic regimens no matter how extraordinary.

Robertson¹⁰ notes that given the laws of most states, a physician must either treat or seek judicial approval for without legislative sanction, the distinction between brain death and passive euthanasia* is unclear. Robertson contends that according to most statutes, passive euthanasia is no less a homicide than is active termination of an individual's life, for such passive termination is homicide by omission. Within the boundaries of the law, an individual's family cannot nullify that legal duty which a physician has towards his patient.

From the present study, 94% of respondents indicated that there were situations when termination of life support was justifiable. While Crane³ and Brown¹¹ found that physicians rarely faced with such decisions tended to be more supportive of passive termination of life support, in the present study no significant differences were found by either specialty or frequency of making such decisions.

A major rationale advanced by Minnesota physicians for the termination of life support was *the hopeless situation*, which physicians described as "living death" and what Sudnow has labelled "social death", the permanent loss of the ability to communicate.² What Minnesota physicians seem to be indicating is that if an individual loses all promise of regaining ability to communicate or function, then it may be appropriate to consider terminating life support. Because legislative and judicial leadership continues to be missing, the physician has few guidelines upon which to base decisions. While the physician is at risk for both malpractice and criminal liability, there is no precedent for a physician having been found guilty of a criminal act in relation to the termination of life support.¹²

When physicians were asked about their willingness to override patient wishes, while 65% indicated that they would, the majority also said that their patients are actively involved in decisions which govern their lives. When looking at this same issue of abiding by patient's wishes, Crane¹ found a polarization be-

TABLE 3
Physician Willingness to Override
Patient, Family, Hospital and/or Community Norms (N=287)

Reference Group: Under Certain Circumstances I would be willing to Override Wishes of the . . .	Response of Physician Sample					
	Willing to Override		Unwilling to Override		No Response	
	Wishes of Reference Group	Wishes of Reference Group	Wishes of Reference Group	Wishes of Reference Group	No Response	No Response
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Patient	187	65.2	19	6.6	81	28.2
Family	201	70.1	14	4.8	72	25.1
Hospital	210	73.3	7	2.3	70	24.4
Community norms	201	70.1	21	7.3	65	22.6

tween high technology, university affiliated institutions, and those which were community based. The university facilities more frequently ignored patient wishes for cessation of extraordinary therapy than community institutions. In the present study, while the sample of university based hospitals was insufficient to make statistical comparisons, the presence of medical residents affected how critical care decisions are made by staff physicians. While community based clinicians did feel they were more likely to abide with the wishes of their patients than physicians in academic settings, we found no difference regarding the overriding of patient wishes between the two groups.

There were two aspects of physician responsibility to the individual patient expressed by both university and community practitioners: (1) the respect for patient autonomy, (2) the protection of the patient's interests when he or she is unable to do so (senile, comatose, neonate). Physicians wrote at great length about the patient's right to die. Most indicated that they struggled with the issues of the *incompetent patient*, expressing discomfort with making decisions without knowing the patient's wishes. Few spoke of the importance of following the physician's moral imperative rather than that of the patient's, even in circumstances where the patient's desire conflicted with the physician's ethical stance. Only a minority said they would counter patient's wishes. Other practitioners expressed the obligation to transfer the patient to a physician who would have views more consistent with the patient.

The decision making process described by the majority of respondents begins with the wishes of the individual patient. When it is impossible to ascertain patient wishes or when, in his judgment, the physician considers the patient incompetent to decide, the family should become more directly involved. If, on the other hand, the physician considers family decisions contrary to the patient's best interest, he has the obligation to intercede. The hospital should become involved only when there is significant disagreement between physician and patient or his family. While more than 70% of physicians expressed a strong opinion on this subject, most agreed that it rarely becomes necessary to override either patient, family, hospital, or community norms.

Conclusion

As technology continues to proliferate and as the capacity to extend physiologic life becomes more readily available to primary and secondary level institutions, the issues surrounding critical care decision making will become increasingly important. Presently we are at an historical period where the focus has been on creating mechanisms of control and regulation prior to defining central issues. While the latter is more complex, to establish regulatory mechanisms without clarity of how they should function and with what issues they should deal, will lead only to a widening schism between medical providers and the patients to whom they are committed.

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Propranolol - Use in the Elderly - Baillie (page 486).

Physician Need in Minnesota

CAROLE J. BLAND, Ph.D.* and J. STEPHEN PRESTWOOD, M.A.*†

Three key concepts involved in any analysis of physician supply (population, physician, need) are discussed. The effects of using different operational definitions for these concepts are illustrated using recent data for the State of Minnesota.

DURING THE 60s, a shortage of physicians and other health care professionals was identified in the United States and in Minnesota.¹⁻⁷ State actions in response to this shortage included expanding the University of Minnesota Medical School in Minneapolis, establishing new medical schools, expanding primary care training efforts, increasing efforts to retain and attract physicians, and increasing efforts to encourage physicians to locate in rural shortage areas. Fenderson, Clark, and Davidson⁸ now conclude that the goals proposed by the Minnesota Senate in 1969⁷ for increased numbers of physicians, particularly in primary care, and for improved geographic access to medical care have been largely achieved. They go on to predict that a substantial physician surplus will exist by 1990 in Minnesota. Fenderson and Clark⁹ predict a surplus of 480 physicians in 1980, 1,280 in 1985, and 2,080 in 1990. Their conclusions regarding physician supply, however, are contradicted by Higgins' 1980 report on the supply and distribution of physicians, dentists, and nurses in Minnesota.¹⁰ Higgins suggests that there still may be a significant number of underserved areas in Minnesota even though improvement is evident over the past ten years. In this paper we will attempt to examine the factors which account for these differing conclusions and will offer a somewhat different perspective on the data. We agree that progress has been made in alleviating Minnesota's shortage of physicians. We maintain, however, that important shortages in the number and availability of primary care and family physicians remain.

Conflicting conclusions about physician need arise from a number of factors, including the use of different definitions for terms and concepts such as physician supply, physician need, physician, primary care physician and population. Misconceptions

and inappropriate conclusions are likely if careful consideration is not paid to the assumptions upon which these definitions are based. The first part of this paper discusses three critical concepts underlying any statement regarding physician supply and the adequacy of that supply: population, physician, and need. The second half of the paper describes the supply and distribution of physicians, particularly family physicians, in Minnesota. Throughout, we will examine closely and critique three recent documents describing physician need in Minnesota:

The Physician Shortage of 1970 — What Happened? Douglas A. Fenderson John C. Clark, and Gestur B. Davidson.⁸

Minnesota's Physicians: Number, Specialty, Geographic and Age Distribution — 1965-1977 — and Contingent Projections to 1990. Douglas A. Fenderson and John C. Clark. Preliminary draft. Unpublished document, Minneapolis, University of Minnesota, 1980.⁹

Recent Changes in the Supply and Distribution of Physicians, Dentists, and Registered Nurses in Minnesota: A Compilation of Available Data. Paul Higgins and Frances Lawrenz of the Minnesota Area Health Education Center. A report under DHEW Contract HRA-232-80-0005, November 1980.¹⁰

Population

The most common means of describing physician supply is to compare the number of physicians to the population of a given area and to state this comparison as the ratio of physicians to population. Populations are described in a number of ways. Federal regulations defining health manpower shortage areas (HMSAs), for instance, take into account factors such as age by sex distribution, tourism, birth-rate, infant mortality, and economic indices.¹¹ Most sources, however, including the recent documents describing physician supply in Minnesota⁸⁻¹⁰ and

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this paper, use raw population figures provided by the United States Census Bureau.

Although the physician-to-population ratio itself seems to be a straight-forward index, its use entails a critical assumption regarding the distribution of physicians and the units of geographic analysis. A single physician-to-population ratio for the entire United States, for instance, says nothing about the physician supply in different areas of the country. Similarly, a statewide figure reveals little of the actual distribution of physicians in a state and, in fact, can distort the overall picture. If geographic factors such as the average distance between patient and provider are not considered, the geographic unit of analysis must be fairly small (e.g., county, city, township) for the physician-to-population ratio to be meaningful.

Physician

Active Physician

Another important assumption made in using a physician-to-population ratio concerns the definition of physicians. For instance, does the physician-to-population ratio include all physicians? All practicing physicians? All practicing primary care physicians? Some other category? "Active physicians" are frequently counted, using the definition given by the American Medical Association. This definition eliminates doctors who describe themselves as retired, disabled, or not in practice. It includes residents and physicians who are primarily involved in teaching, research, or administration. If only active physicians are included, are physicians in part-time practice and physicians in internships and residencies included at full parity with full-time practicing doctors? If a ratio is generated for physicians rendering primary care, which specialties should be included?

These questions do not reflect mere semantic concerns. Understanding the answers to these questions is critical for meaningful interpretation of the data. Cognizant of the various definitions for physician, Fenderson and Clark's⁹ report, for example, provides data separately for four definitions of active physician: (1) No residents are counted as active. (2) Half of the residents are counted as active. (3) No residents are counted as active in 1965 or 1971 but half are counted in 1973 and 1977. (4) Residents are counted as active for all years.

Primary Care Physician

The physician manpower literature shows considerable variety in definitions of "primary care phys-

ician." The Association of American Medical Colleges' committee on physician distribution, for example, describes a primary care physician as "a physician who establishes a relationship with an individual or family for which he or she provides continual surveillance of their health needs and comprehensive care for the acute and chronic disorders that he or she is qualified to care for and access to the health delivery system for those disorders requiring the services of other specialists".¹² Alternatively, Fenderson, Clark, and Davidson⁸ define primary care physicians as those who "provide largely nonreferral, first contact care in covering 90 percent of the problems presented without referral." Both definitions are reasonable, and, for the purposes intended, quite adequate. In 1978, the Institute of Medicine identified thirty-eight such definitions for review and there are doubtless many more.¹³

For purposes of data collection and analysis though, elaborate definitions give way and the designation of primary care is usually determined by the physician's own report of his/her primary specialty.

Assessing Current Need

Once physician supply is noted, how is the adequacy of that supply (physician need) determined? The different methods used to determine physician need can be categorized as demand-based and needs-based models. As Fenderson and Clark point out, however, demand is "... an illusive construct, dependent on economic factors such as insurance (or lack of it), societal values, geographic proximity to services, the availability of services, types of services available and a host of other factors."⁹ Because of the difficulty in determining demand, most analysts (including Fenderson and Clark) use some form of a needs-based model.^{8,9,14-16}

There are numerous ways to assess physician need using needs-based models. The Public Health Service, for instance, designates health manpower shortage areas by assessing physician-to-population ratio, birthrate, infant mortality, proportion of persons below the federally defined poverty level, and average distance between individuals and physicians.¹¹ Other factors that have been included in definitions of physician need are emergency room utilization,¹⁷ consensus from doctors practicing in certain specialties,¹⁸ estimates of the prevalence of disease and medical problems in the population and the relationship of these to the mix of specialists available,¹⁸ physician work load,¹⁹ and physicians age.²⁰

As with definitions of primary care, quantitative

assessments of physician need seldom use elaborate models incorporating factors such as those above. Rather, an area is generally identified as an area of need if the ratio of physician-to-population fails to meet a given criterion or set of standards: typically a minimum physician-to-population ratio.

Thus, while a physician-to-population ratio can be used to describe an existing physician supply situation, another physician-to-population ratio can be used as a criterion for assessing the adequacy of that supply. For example, the Department of Health and Human Services (DHHS) and the American Academy of Family Physicians (AAFP) have established physician-to-population ratios which serve as criteria for judging the physician supply adequacy. According to DHHS guidelines for identifying health manpower shortage areas, a primary care physician-to-population ratio of 28.57 physicians per 100,000 population, or less is *prima facie* evidence that a shortage exists. Even with a higher ratio (between 28.57 and 33.33 per 100,000), an area is designated as a shortage area if there are more than 100 births annually per 1,000 women age 15-44, the area has more than 20 infant deaths per 1,000 live births, or if more than 20 percent of the population (or of all households) have incomes below the poverty level. The DHHS includes general and family practitioners, internists, pediatricians, and obstetricians/gynecologists in their count of primary care practitioners.¹¹

The AAFP defines an area as a family physician shortage area if there is less than 1 active family physician/general practitioner per 2,750 persons.²¹ This is equal to 36.36 FP/GP's per 100,000 persons. (In recommending this physician-to-population ratio, the AAFP assumes that a typical active family physician see patients six and a half hours each working day. Estimating 33 patients a day (about five per hour) for 250 days a year equals 8,250 patient visits. Kerr White²² suggests that individuals who see care from a family physician do so at the rate of three visits per year. Therefore, 8,250 visits would serve 2,750 people per year.)

It should be noted that the AAFP criterion (36.36 FP/GP's per 100,000) is very similar to the criterion independently chosen by the Graduate Medical Education National Advisory Committee (GMENAC). The GMENAC criteria is 34.5 FP/GP's per 100,000.

Assessing Future Need

The prediction of future needs requires the consider-

ation of all three factors which are involved in assessing current need: population, physician, need. Because predictions of future needs can have such far-reaching importance in effecting public-policy and thus in shaping our future lives, each of the factors must be ever more carefully considered. Uncertainties as well as the certainty that the future will, in some ways, be different from the present must also be taken into account. For example, the questions regarding population definition must be broadened to include facts such as the current de-urbanization trend which increases the proportion of people locating in presently underserved rural areas. The change in age distribution of the population and the differential health care needs of the elderly and the young must also be considered. In definitions of physician one must consider new facts as well. What specialties are most effective and efficient in serving rural areas? What changes in the specialty distribution will need to be made to mirror the aging of the population? Will advances in medical knowledge differentially affect the specialties? What will be the impact on physician need of the increasing use of physician assistants, nurse practitioners, and midwives?

Finally, because predictions of future need will have wide ranging impact on public-policy in the coming years of "tight money," definitions of and criteria for determining need require especially close consideration. It is, after all is said and done, these criteria which most affect the conclusions which will be drawn from any set of data, regardless of the care with which the concepts of population and physician are handled.

For example, because of the definitions used for these three underlying concepts, the predictions of Fenderson, et al.^{8,9} may be misleading. With regard to "population," Fenderson et al. use statewide figures which may obscure differential levels of need for different areas of the state. The need for physicians in specific counties and communities no doubt varies considerably. With regard to "physician," only total physicians or primary care physicians are considered. They do not address the possibility or effect of differential need for physicians in different specialties. Finally, in setting the "criteria for assessing current and future need," they assume that the 1977 Minnesota statewide physician/population ratio for both specialty and primary care doctors is "acceptable" and "provides for an appropriate level of access to treatment." It is unclear how the 1977 physician-to-population ratio could be used as a criterion of adequacy regarding "access to treatment" since this phy-

sician/population ratio ignores the distribution of physicians throughout the state. The authors justify the use of the 1977 ratio as a criterion by calling attention to the fact that "... total active physician stock rose three to five times the rate of population growth during the period 1965 to 1977".⁹ The fact that the total numbers of active physicians grew faster than the population between 1965 and 1977 does not, however, assure that an adequate physician-to-population ratio was achieved in 1977.

Recommendations for Assessing Needs

To avoid the problems indicated above, the following conventions are recommended:

Family practice and primary care physicians should be considered separately from total physicians. The distinction is significant since, compared to physicians in other specialties, primary care physicians, particularly family physicians, display the following characteristics:

- (1) Provide care to patients at a lower cost.^{12,23}
- (2) Carry higher patient loads.²⁰
- (3) Locate more frequently in underserved areas (urban or rural).²³
- (4) Are the most feasible providers of care to underserved areas.²³
- (5) Provide care for up to 90% of patient problems.²³
- (6) Constitute 52% of all physicians in Minnesota.
- (7) More than any other type of physician, are trained to provide the type of care described in various definitions of family or primary care.
- (8) Are trained to provide the majority of their care in an ambulatory setting, allowing them to locate in areas without highly sophisticated hospitals next door.²³

Only physicians directly involved in patient care should be included in the analysis. Physicians who are primarily administrators, teachers, researchers, residents, retired, or otherwise not mainly involved in rendering direct patient care should be excluded.

The overall distribution of physicians should be considered. Global estimates of service (e.g., statewide physician-to-population ratios) should be avoided.

Residents should be prorated so that 10 residents count as 1 active direct care physician.¹¹

Supply and Distribution of Physicians in Minnesota

The following sections describe the supply and

distribution of physicians in Minnesota according to the notions of adequacy employed by three different sources: Fenderson, et al.; the DHHS in defining health manpower shortage areas; and the AAFP for family practitioners.

Fenderson and Clark; Fenderson, Clark, and Davidson

Figure 1 shows active physician-to-population ratios by county for 1977.* Fenderson, Clark, and Davidson⁸ suggest that an adequate supply of active physicians exists in Minnesota if there are 169.9 active physicians per 100,000 persons. They define an active physician as a licensed physician who is not retired or disabled. Thus residents and physicians in teaching, research, and administration are included. Even though this ratio is the actual statewide ratio for 1977, its use on a county-by-county basis clearly illustrates the uneven distributions of physicians throughout the state. In fact, using the suggested criterion of 169.9 physicians per 100,000 population, only three counties have an adequate supply of physicians in 1977.

Figure 2 shows the active primary care physician-to-population ratios by county for the same year. Fenderson, Clark, and Davidson define active primary care physicians as "those physicians providing

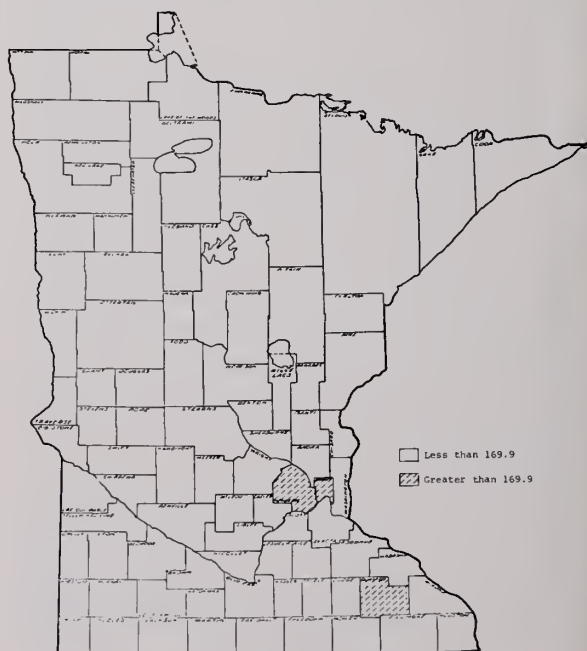


FIGURE 1
Active Physician-to-Population Ratios by County for 1977

*The raw data for the physician figures were obtained from a tape of the AMA master file which contains biographical data on members and nonmembers; assigns geographic location on the basis of professional mailing addresses; and classifies physicians as to specialty and practice status (active or inactive, direct patient care, or other) on the basis of self-report.²⁴ Minnesota county and state population estimates were obtained from the Office of the State Demographer.²⁵

largely nonreferral, first contact care and covering more than 90 percent of the problems presented without referral.” Operationally, they take active primary care physicians to be family physicians, general practitioners, internists, or pediatricians. Again, Fenderson, et al. suggest that the actual state ratio in 1977 (74.6/100,000) is an appropriate ratio of primary care physicians to population. And, again, the problem of using a single statewide statistic to define need is obvious. In 1977, 83 counties were undersupplied with primary care physicians according to this definition of primary care physician and thus of primary-supply adequacy.

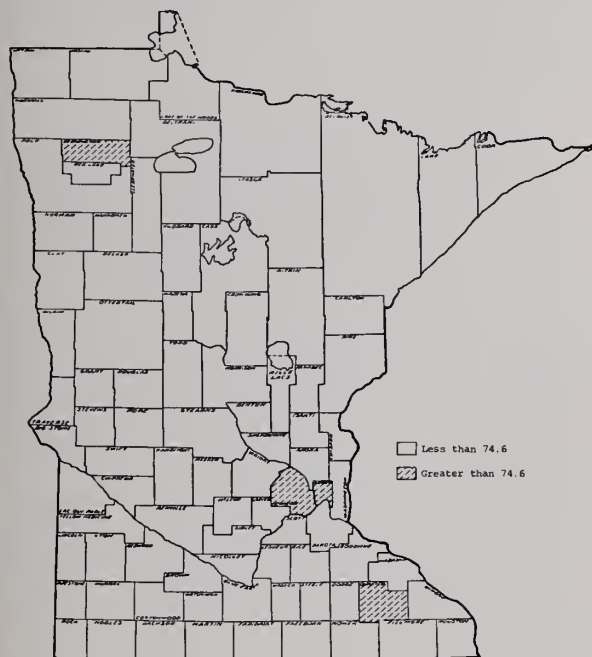


FIGURE 2
Active Primary Care Physician-to-Population Ratios by County for 1977

Health Manpower Shortage Areas

Recall that the federal government defines a health manpower shortage area (HMSA) as an area having less than one primary care physician per 3,500 persons (28.57 primary care physicians per 100,000 population). An area with less than one per 3,000 persons (33.33/100,000) is a possible shortage area.¹¹ By these definitions, at least 23 Minnesota counties were eligible for shortage-area designation in 1977. Six additional counties were possible shortage areas in that year. Figure 3 shows the active primary care physician-to-population ratios by county, relative to these federal standards.* These results dif-

*While HMSAs may consist of whole counties, parts of counties, or areas overlapping several counties, the data necessary to assess these designations are generally available only for whole counties. The population figures used were obtained from the Minnesota Office of State Demographer¹² and were not adjusted for age by sex distribution or transient population (seasonal residents, tourists, or migratory workers).

fer from the conclusions of Fenderson et al. that the number of active primary care physicians in Minnesota in 1977 was “acceptable” and provided “appropriate level of access treatment.”⁸

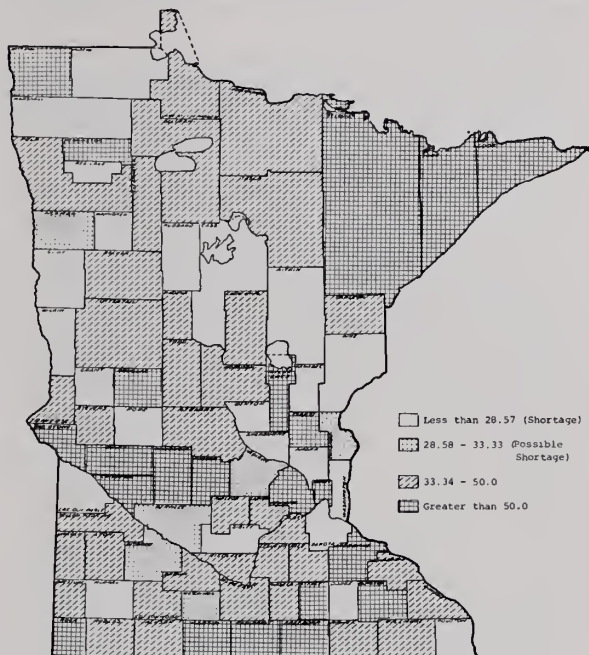


Figure 3
Active Primary Care Physician-to-Population Ratios by County for 1977

Figure 4 shows recent official HMSA designations — those for August 1980. Eight whole counties were so designated. Higgins and Lawrenz¹⁰ independently

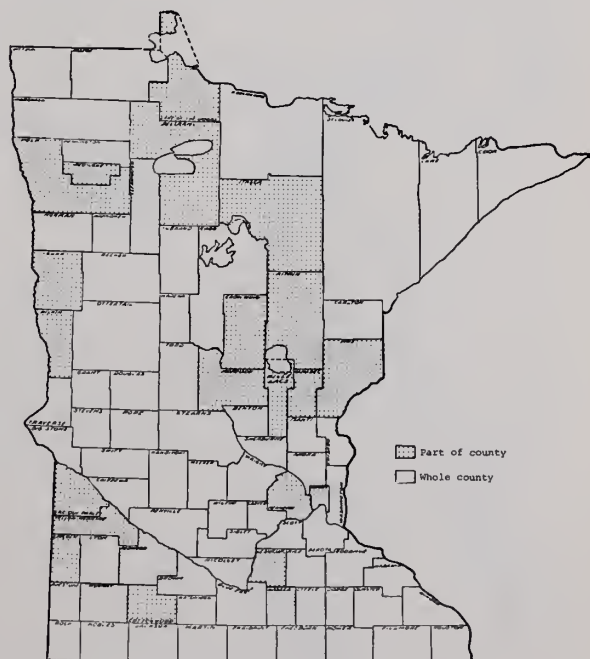


FIGURE 4
Health Manpower Shortage Areas, August 1980

analyzed the data used to designate HMSAs for 1980 and note that "several counties in Minnesota, in addition to those that have been federally designated, may indeed have significant shortages of primary health care personnel."

Family Physicians in Minnesota

Figure 5 shows the supply and distribution of family practice and general practice physicians in Minnesota in 1977. Adopting the conventions recommended in this paper, only physicians active in the direct care of patients are considered. Thus, physicians who are retired or disabled or those whose primary responsibilities are administration, research, teaching, or any other nonpatient care activity, are excluded. Residents are prorated so that 10 residents count as one active physician.¹¹ The data is shown for counties since counties are more homogeneous than the state as a whole and since county data are commonly used in decisions regarding physician need, health manpower shortages, etc.

Of the 87 counties in Minnesota, 52 are without adequate numbers of family physicians in 1977 according to the criterion recommended by the American Academy of Family Physicians — 36.36 physicians/100,000 population. Interestingly, shortages of family physicians according to the AAFP criterion exist in both urban (e.g., Hennepin, Ramsey) and rural counties.

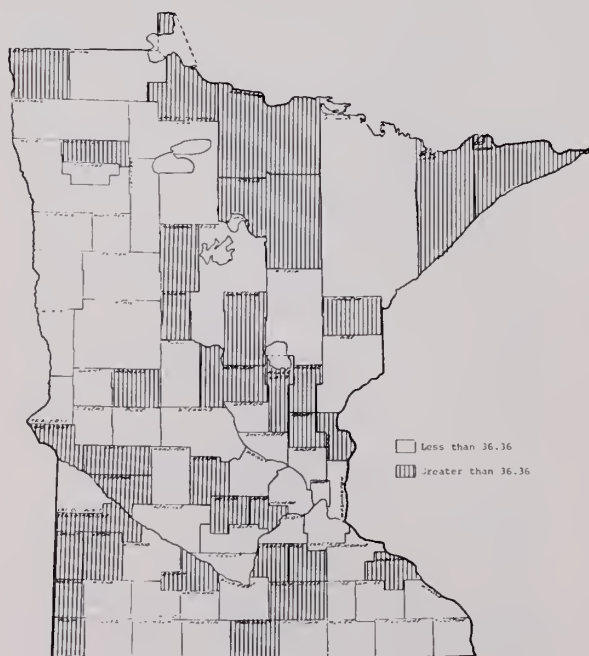


FIGURE 5
Active Direct Care Family Physician/General Physician-to-Population Ratios by County for 1977

Conclusions

Different definitions of population, physician, and need, markedly affect the data presented and thus markedly affect statements made regarding physician supply and the adequacy of that supply. As shown in the analyses presented above, the adequacy of the supply of physicians in Minnesota differs depending on the definitions given critical concepts. Single studies can never take into account all of the factors affecting statements of physician need. The importance of such studies in public policy decisions and in private career decisions, however, dictates that all conclusions regarding physician need be carefully drawn, taking into account the limitations of the data given the definitions used.

Comment

According to the recommendations of the DHHS and the AAFP, Minnesota remains short of adequate numbers of primary care and family practice physicians, respectively. In 1977, for instance, a minimum of 315 additional family physicians would have been needed in the state in order to achieve the number of family physicians recommended by the AAFP for each county. Minnesota training programs have produced 203 family physicians since 1977, about 60% of whom remain in the state. Even without considering such factors as growth in the population since 1977, decrease in physician stock due to death and retirement, or recent graduates' decisions not to locate in shortage areas, the number of family physicians in the state remains inadequate today.

It is noteworthy that these findings and conclusions are not unique to Minnesota. Penrod's^{26,27} physician need studies in Florida found that although "... many of the specialties now appear to be well supplied on a statewide basis ... There are still more serious shortages, especially among the primary care specialties, and psychiatry."²⁶

Similarly, a recent physician need study in California found severe shortages in the specialties of family practice, internal medicine, pediatrics, child psychiatry, and physical medicine and rehabilitation. In fact, if California is to meet the number of family physicians in 1990 suggested by the GMENAC model, they would need slightly more than 400 additional family physicians annually. Their programs produce only 220 per year. Thus, even if they retain all of their graduates, they will fall short of the number of recommended by GMENAC.²⁸

In sum, similar circumstances prevail in Min-

nesota, California, and Florida: (1) statewide surpluses exist in some specialties within the state; (2) shortages exist in many geographic areas; and (3) major shortages exist in the number of primary care physicians, particularly family physicians. Of these, family physicians would seem best suited to fill the current needs. Wechsler, Bovey and Dorsey,¹² for instance, report that (in Massachusetts) residents trained in internal medicine, pediatrics, and obstet-

rics/gynecology spend only 27, 42, and 39 percent of their later practice time in primary care activities. Accordingly, the recommendations of the authors of this paper, Penrod in Florida,^{26,27} Smeloff in California²⁸ and the authors of the GMENAC report²⁹ (see recommendations 5, 21, & 29) are that primary care training programs, especially family medicine programs, receive continued support.

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Continuing Medical Education Fargo, North Dakota

"Management of New and Old Infectious Problems Seen in Children" will be the topic for the Fargo Clinic's 4th Annual Pediatric Day Seminar, October 16, 1982 at the Fargo Holiday Inn. For details, contact: Medical Education, St. Luke's Hospital, 5th Street North at Mills Avenue, Fargo, ND 58122; (701) 280-5933.

Minnesota Medical Association

Possible Futures for the Health Care System and the Minnesota Medical Association*

One of the major goals in 1982 for the Minnesota Medical Association's Committee on Long Range Planning was the identification of future trends in the health care system and the potential effects of those trends on the Association. This paper will be used as background for the development of the goals and programs for the second cycle of the MMA's long range planning process.

For purposes of brevity and ease of review, the Committee has chosen to list statements of trends rather than to provide descriptive narrative. The following trend statements represent the perspectives of the Committee on Long Range Planning on what the future may bring for health care, medicine, and the MMA.

Analysis of Trends

Trends Affecting Health Care and Medical Systems

1. Good health is highly valued. Consumers are willing to spend a substantial amount for health care services. Yet we are entering an age of resource limitations. The capabilities of the health care system to treat or prevent disease may outstrip society's willingness or ability to pay for those services.
2. The health care industry is in a growth phase for the following reasons:
 - a. The definition of what constitutes a health care service has expanded (many societal caring roles are now being classified as health care services),
 - b. consumer expectations of the health care system are rising,
 - c. scientific knowledge and use of sophisticated technology are expanding,
 - d. the expanding numbers and types of health care providers will increase the availability and use of health care services,
 - e. the population is aging, with corollary increases in the demand for health care services,
 - f. the profile of diseases which affect the population is changing from acute and infectious to chronic diseases and conditions,
 - g. to date, most payment mechanisms have not emphasized cost-sensitivity on the part of consumers and providers, and
 - h. the expansion of professionally-defined minimal expectations for quality care.
3. New organizations will develop and will package health care resources in new ways to delivery and pay for health care.
4. The number of free-standing or unaffiliated providers (e.g., hospitals, solo practice physicians) will decrease, as the number of affiliated providers increases.
5. Employers will increase their efforts to control health care costs by affecting the choices their employees make regarding health care services.
6. Price competition at all levels of the health care system will increase, regardless of whether laws are changed to encourage it.
7. Competition among various health care providers for patients will increase. Competition for patients is ensured by the increasing number of physicians and the increasing number and types of other health care providers vying to meet the perceived needs of the public.
8. The public sector will seek greater involvement in the delivery of health care services and will provide an increasing variety of payment mechanisms for those unable to pay.
9. Joint efforts between the public and private sectors to solve some of the health care delivery problems will continue. These efforts may take the form of community-based planning or coalition activities.

*This paper was developed by the Minnesota Medical Association's Committee on Long Range Planning. Members are: Drs. Gordon S. Landsman, Chairperson (Minneapolis), John B. Coleman (St. Paul), James F. Knapp, ex officio (Detroit Lakes), Severin H. Koop, Jr., ex officio (St. Cloud), C. J. McCarthy, ex officio (St. Paul), Gunard A. Nelson (Edina), Ann H. Schutt (Rochester) and Vernon L. Sommerdorf (St. Paul). Staff support is provided by George C. Lohmer, Jr., Director, MMA Department of Health Planning and Carol J. Kaemmerer, Assistant Director, MMA Department of Health Planning.

FUTURES FOR THE HEALTH CARE SYSTEM AND MMA

10. As price competition increases, quality and accessibility to care for special groups and geographic areas may be jeopardized.

11. Benefit and payment decisions made unilaterally by third-party payors to control health care may result in cost shifting from one payor to another. Coalition activities and collaborative problem solving may address this issue.

12. An increasing number of patients will be treated on an outpatient basis through clinics, offices and other free-standing facilities.

13. Consumers and providers will increasingly seek alternatives which best meet their needs. These include decisions about: traditional vs. non-traditional approaches to care; specialty vs. primary care; and high vs. minimal use of technology.

Trends Affecting Medical Professional Associations

1. Physicians may be more likely to identify with their practice organizations and specialty societies than a broad-based medical professional association.

2. As physician allegiances to broad-based medical professional associations wane, the effectiveness of policies and practice standards developed by these associations will be diminished.

3. Decreasing membership in broad-based medical associations will decrease the resources available for programming.

4. Broad-based medical professional associations are in a unique position to allow physicians from different practice settings, practice orientations and specialties to exchange ideas at the local and state-wide levels.

5. Broad-based medical professional associations are in a unique position to identify and respond to the various needs of all physicians.

Possible Role Options for the Minnesota Medical Association

Given the trends cited, the Minnesota Medical Association might consider the following role options for providing services to physicians:

1. The MMA should provide services valuable to residents of the state of Minnesota. Examples include, but are not limited to:

- legislative and administrative lobbying/advocacy,
- public health programs,
- protection of patients from quackery,
- continuing medical education, and
- cost-containment seminars, programs and consulting services.

2. The MMA should provide a link between and among physicians in various specialties, practice settings and practice orientations. Linking activities could include:

- specialty society leadership forums,
- Health Sciences Liaison Committee,
- multi-disciplinary leadership forums,
- broad physician representation on MMA committees from specialties, practice settings, and practice orientations,
- liaison with medical students and residents,
- definition of the unique role of the physician in medicine and health, and
- forum for the discussion of specific and relative roles of various medical specialties.

3. The MMA should take an active role in attempting to assure quality medical care through such programs as:

- continuing medical education,
- programs to protect the public from quackery,
- impaired physician programs,
- programs for peer review,
- patient grievance program, and
- programs to review appropriateness of physician fees.

FUTURES FOR THE HEALTH CARE SYSTEM AND MMA

4. The MMA should seek the involvement of component medical societies and hospital medical staffs as appropriate to identify local physician leadership and implement relevant programs.

5. The MMA should provide or assure the provision of services that would meet the needs of specific members. The MMA should offer services which may generate income for the Association. Examples of possible programs include but are not limited to:

- developing a program to provide locum tenens and back-up coverage for local physicians,
- developing a centralized billing program to coordinate payment of bills for services received by hospitalized patients,
- offering professional medical liability insurance,
- representing physicians in negotiations with non-physicians, provider groups and third-party payors,
- developing an organization which could provide secretarial and billing services for physicians' offices,
- developing a program to assess physician office practices for the purposes of certifying office practices and quality of patient care,
- offering financial counseling,
- offering legal services (e.g., staff counsel, separate entity for legal representation),
- offering practice management services and seminars,
- providing travel services (including time-sharing programs for condominiums, travel tours, travel discounts, automobile leasing, etc.)
- providing administrative services for specialty and component medical societies,
- developing a physician placement service, and
- developing expertise in the provisions of computer services for physicians' offices and hospitals (e.g., time-sharing, purchasing, or central processing for (1) billing, (2) scheduling, (3) data collections, (4) research, (5) administrative activities).

Continuing Education

"Insulin Dependent Diabetes Type I"

A five-day course of Insulin Dependent Diabetes (Type I) for family members and health professionals interested in the care and management Type I diabetes is being sponsored by the Diabetes Education Center, a component of the St. Louis Park Medical Center Research Foundation, Minneapolis, Minnesota.

Dates Classes are offered:

October 4-October 8, 1982

Tuition: \$300.00

Continuing Education credits: Approved for 3.4 CEU'S for AAFP physicians and registered nurses; 30 clock hours for pharmacists and dietitians, nursing home administrators and other health professionals.

For further information please contact Helen R. Bowlin, R.N., Health Professional Coordinator, Diabetes Education Center, 4959 Excelsior Boulevard, Minneapolis, Minnesota 55416 Phone (612) 927-3393.

Minnesota Medical Association

from Division of Socio-Economic Affairs

Charles W. Wiger, Director, Division of Socio-Economic Affairs

Carol Kaemmerer, Director of Research

George C. Lohmer, Jr., Director, Department of Medical Practice and Planning

Kathy Meyerle, Director, Department of Legislative Affairs/Legal Counsel

To streamline the operation of DSEA, the Division was reorganized effective August 2, 1982. At that time, the Departments of Health Planning and Medical Services and Research were merged and are now designated as the Department of Medical Practice and Planning. George Lohmer is the Department Director. Additionally, the position of DSEA Director of Research was created and will be filled by Carol Kaemmerer.

Research

MMA Studies Physician Perceptions of Medical Manpower Needs

You, or one of your associates, may already have received a questionnaire from the Minnesota Medical Association seeking information on recent trends in physician manpower and the practice of medicine in our state. One thousand, three hundred physicians will be asked to participate as part of a random sample.

The study, endorsed by the MMA Board of Trustees, aims to obtain reliable information to assist public policy makers in making decisions concerning the training and distribution of physicians in the years ahead. While other manpower studies utilize econometric and formula-based approaches, your Association is committed to obtaining information *directly* from physicians on our experiences of manpower needs in Minnesota communities.

All responses will be handled in the strictest confidence, and only aggregate figures will be published. If you are among those physicians chosen to participate, the MMA Board of Trustees urges that you complete the questionnaire, and return it promptly. If you have any questions, contact Carol Kaemmerer, Director of Research, Division of Socio-Economic Affairs.

Department of Medical Practice and Planning

MMA Testifies at Legislative Hearing on Price Competition

Robert D. Christensen, M.D. of the MMA Board of Trustees, testified on July 21, 1982 at a hearing of the Health Care Subcommittee of the House Health and Welfare Committee. Representatives of various other provider groups (including the Council of Community Hospitals, Hospital Trustees, and the Minnesota Hospital Association) were also invited to give an interim report to the legislature regarding their Associations' activities in voluntarily implementing the health care price disclosure provisions of a recently enacted Minnesota statute (Chapter 614). Chapter 614, which was enacted in the final hours of the 1982 legislative session, was intended to foster competition in the health care industry. The law has the following components: (1) Repeal of Certificate of Need legislation effective March 15, 1984, (2) Encourage the voluntary release of health care provider price information by January, 1983, (3) Mandate a provider price release program IF the voluntary effort of a provider group is judged to be ineffective, and (4) Study the future of health planning.

Dr. Christensen cited the MMA's strong support for this new legislation and reiterated a position formally adopted by the MMA Board of Trustees:

"To bolster the continued development of a market mechanism in which the price of services is a relevant factor, the Minnesota Medical Association supports the voluntary release of prices by providers. The MMA has frequently encouraged consumers to discuss fees for services with their physicians. In fact, physicians generally release fee information for specific services upon request. The MMA encourages its members to make fee information available in their office and over the telephone. We urge our members to post a statement in their offices or reception areas of the availability of the fees for the most frequently performed procedures."

The MMA has committed itself, Dr. Christensen noted, to a voluntary effort for price release by physicians because of its belief that it is important for both consumers and providers to be knowledgeable about

DIVISION OF SOCIO-ECONOMIC AFFAIRS

prices for health care services, and to show good faith in complying with the voluntary spirit of the provisions of Chapter 614. In carrying out its program for physicians, Dr. Christensen indicated that the MMA Board of Trustees has agreed to: (1) develop a statement of the availability of fees for physicians' offices, and (2) to determine the most frequently performed procedures and services for major physician specialties.

The MMA has contacted Blue Cross/Blue Shield of Minnesota, the Minnesota Department of Public Welfare and the Hennepin County Medical Society for their assistance. Dr. Christensen noted that the MMA will work with its Interspecialty Council to produce approximately twenty procedures lists. Developmental steps outlined by Dr. Christensen include:

September 1982	Staff work to collate lists and develop statement of availability.
September 1982	Development of specialty lists of most frequent procedures by specialty societies.
October 1982	Staff work to collate lists and develop statement of availability.
November 1982	Distribution of lists and statement of availability to physicians, and listing of fees by physicians.
December 1982	Posting of fees in physicians' offices or posting of the statement of availability.
March 1983	Survey of membership to determine whether fees or statement of availability of fees are posted.

The hearing before the Health Care Subcommittee was called to inform legislators of the community reaction to price competition. Some legislators remain skeptical that true competition can occur and expected to hear that nothing was being done. MMA testimony emphatically refuted that presumption.

The MMA also distributed copies of pricing information from several clinics. The MMA comments were all received and the efforts complemented.

Minnesota physicians will hear further from the Board of Trustees regarding this voluntary price release project. Our success at eliminating the need for a mandatory program under the auspices of the Commissioner of Health is dependent on cooperation of each physician and clinic in the state.

Department of Legislative Affairs

The House Health and Welfare Committee subcommittees called on MMA witnesses for comments on two important issues at hearings during July. The Social Services Subcommittee on July 14 heard Lee H. Beecher, M.D. speak about MMA's concerns with reductions in the General Assistance Medical Care (GAMC) program. On July 21, Robert D. Christenson, M.D. testified before the Health Care Subcommittee on the MMA's progress in promoting price competition following repeal of the certificate of need law.

The Social Services Subcommittee is preparing for the 1983 budget session by analyzing the impact of the 1981 changes on the GAMC program. The MMA pointed out that the significant reductions in reimbursement to physicians were causing some groups to limit the number of GAMC patients on their rosters. These patients are delaying seeking care due to this reduced access and as a result are then entering county hospitals with exacerbations of their illnesses.

Dr. Beecher told Subcommittee members of the recent MMA House of Delegates action in restating its traditional position that physicians must provide health care to all people regardless of their ability to pay. The MMA also restated its support for a Catastrophic Health Expense Protection Program to protect families from exhausting their resources on health care, thus ending up on public assistance.

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Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

FAMILY PHYSICIAN SW Minnesota rural primary care group (8 FP, 2 Surgeons, 1 Pediatrician, 1 Internist) in agricultural-commercial-university town of 11,000 needs BE/BC FP to maintain and develop patient-oriented group practice. Recently completed hospital and clinic share facilities in medical complex. Usual Chamber of Commerce Claims nearly true here! C. P. Martin, M.D., Doctors' Plaza, Marshall, MN 56258 #(507) 532-9631.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

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specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

FAMILY PRACTICE PHYSICIAN/ or PRIMARY CARE ORIENTED INTERNIST — To join two family practice physicians and a Board certified Surgeon in a group practice. Located in a Community of 2,500 in Southwest Minnesota. This Medical Clinic is supported by a modern 30 bed acute care Hospital and 138 bed skilled long term care facility. Guaranteed first year income, will pay travel expenses for interview. Interested Physicians send curriculum vitae to William Wilson, Administrator, Springfield Community Hospital, P.O. Box 146, Springfield, Minnesota 56087 or call collect (507) 723-4215 for more information.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call J.P. Merickel, M.D., 612-231-5000.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

(continued to page 516)

Classified Advertisements

(continued from page 515)

WANTED: Internist to join 7 family practice physicians and 2 general surgeons. Young physician group, average age 36. 2-year-old clinic building. Serving a trade area of approximately 25,000. Located 90 miles east of Fargo in the heart of Minnesota's vacation area. Next to a 50-bed hospital with a 5-bed CCU-ICU. Excellent consolidated school system. Most religious denominations represented in the area. Contact William Pauley, Park Rapids-Walker Clinics, Ltd., Box 391, Park Rapids, MN 56470 or telephone 218-732-3325.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

MEDICAL STUDENT going into fourth year in September 1982, North American studying in Mexico, urgently seeks guidance and financial support until she obtains her license in the U.S. In exchange for each year of support, she agrees to serve for a year in sponsor organization. Advertiser speaks Spanish, German, Polish, Italian and other related languages besides English. Contact MINNESOTA MEDICINE (729), 2221 University Avenue SE, Suite 400, Minneapolis 55414.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

WANTED: Family practitioner, internist, OB-GYN to join multi-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

COMMUNITY PSYCHIATRIST: Excellent opportunity for diversified practice with stable and innovative mental health organization. Current staff includes one full time and two part time experienced psychiatrists as well as more than 65 other direct care and support staff. Programs include inpatient, partial care, outpatient, special services for children, the elderly, and the chronically mentally ill as well as alcohol and drug dependency, and a very interesting comprehensive pre-paid program with a health maintenance organization. The Center has strong public and private support and serves an area of about 100,000 people. The area has extraordinary four-season recreational opportunities, yet is close to cultural and population centers. Current salary range is \$50,000-65,000 with appointment above minimum possible depending on qualifications. Included also is an attractive fringe package including interview expenses and a generous moving allowance. If interested, please contact Miller A. Friesen, Executive Director, Range Mental Health Center, Box 1188, Virginia, MN 55792 or call (collect) 218-749-2881. AA/EOE

ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

CLINIC PRACTICE FOR SALE — St. Paul Industrial and Gen. Surgery. Many years estab practice — former Emerson Clinic — Will introduce buyer to Ins firms, Indust. plants, Bargeline operators plus many private pts including 3rd generation families. Complete office equip, supplies, files, patient records, extensive P.T. equip, x-ray, lab & pharm. Newly decorated & carpeted waiting room, 6 rooms including emerg. room. Modest down payment — long term financing 10% int. E. C. Emerson, M.D. 806 E. 7th St., St. Paul, Mn. 55106 — 612-776-2744.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

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GENERAL SURGEON. Enjoy the security of group practice with the freedom of independent practice. If you are a Board Certified or Board Eligible General Surgeon, we have an interesting opportunity for you. A General Surgeon is needed immediately to form an independent practice in a very desirable Northern Wisconsin community with a drawing population of 100,000. All major specialists available for consultation. A growing community hospital with 240 beds with excellent medical and surgical subspecialty representation. Opportunities for endoscopy and peripheral vascular surgery also exist. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 55401.

OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

APPLICATIONS WELCOMED from board-certified general radiologists with special interest in nuclear medicine at Saint Paul-Ramsey Medical Center. U of M Teaching appointment. Salary negotiable. Start immediately. Contact Philippe L'Heureux, M.D., (612) 221-3797.

FACULTY MEMBER FAMILY PRACTICE PROGRAM The Black Hawk Area Medical Education Foundation is recruiting a Board Certified Family Physician to join its Family Practice Residency Program in Waterloo, Iowa. The program is community-based, affiliated with the University of Iowa College of Medicine, and part of the Iowa Network of Family Practice Residency Programs. The Waterloo metropolitan area has 125,000 people, four hospitals, and is well represented in the medical specialties. Applicants should have a M.D. degree, be eligible for licensure in Iowa, and should have several years of practice experience. Major duties include teaching residents in all aspects of patient care, including Obstetrics, and also providing patient care. Other duties include some program administration and assisting in research from time to time. A salary in the range of \$60,000 per year with an additional 20% fringe benefit package is offered. Other fringe benefits relating to retirement, moving expenses, and continuing education are provided. Please submit your resume to: Charles A. Waterbury, M.D., Program Director, Black Hawk Area Medical Education Foundation, 441 East San Marnan Drive, Waterloo, Iowa 50702, (319) 234-4419. "Equal Opportunity Employer"

WANTED: FAMILY PHYSICIAN, Board certified or eligible, to help solo physician in South Minneapolis do full time family practice. First year salary leading to full partnership. Part time work available. Write: Minnesota Medicine-727 2221 University Avenue So. E. #400, Minneapolis, MN 55414.

LOCUM TENEN SERVICES — If you need temporary coverage or wish work providing coverage in primary care, contact: INTERHEALTH, 5695 Merry Lane, Excelsior, MN 55331. 612/474-4372

TAX AND INVESTMENT PLANNING. Busy professionals seldom have the time or training to plan their financial future with the sophistication our economic environment now requires. Chiattello and Powell specializes in comprehensive and professionally-responsible planning for practitioners, with a long-term personal relationship between client and planner. Call or write Herbert Schlossberg, Ph.D., Chiattello and Powell, Inc., 2215 Pillsbury Avenue, Minneapolis, Minnesota 55404. (612) 871-9429.

(continued to page 518)

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(Continued from page 517)

SOLAR DESIGN ARCHITECTS with specialty in the design of residences, apartment buildings, clinics and nursing homes. Excellence in design with construction cost control. Call or write Randy Engel, Principal, R. L. Engel and Company, 2905 Dean Parkway, Minneapolis, Minnesota 55416. (612) 920-0803.

ESTABLISHED MEDICAL PRACTICE FOR SALE in San Francisco Bay Area. Opportunity for internist or family practitioner. Community of 45,000. Retiring M.D. will introduce. No internist in town. Other specialties represented. Excellent community hospital facilities available. Reply: Joseph H. Libbey Jr. M.D., 150 Beede Way, Antioch, Calif. 94509.

ORTHOPEDIC SURGEON: needed in modern and innovative 12 physician clinic. Exciting opportunity to practice in one of Americas most beautiful areas. Located in a Northwest Wisconsin community complete with a new hospital, an excellent school system and year-around recreation. Outstanding benefits and compensation package. For further details contact Dr. Thomas Fenger, Chief Executive Officer, Indianhead Medical Group, 1020 Lakeshore Drive, Rice Lake, WI 54868. (715) 234-9031 or (715) 354-7939.

OB-GYN: needed for modern clinic of 12 physicians located in beautiful Northwest Wisconsin. Our community offers a new hospital, excellent schools and year around recreation opportunities. Excellent compensation and benefit package. For further information contact Dr. Thomas Fenger, Chief Executive Officer, Indianhead Medical Group, 1020 Lakeshore Drive, Rice Lake, WI 54868. (715) 234-9031 or (715) 354-7939.

FULL TIME OR SEMI-RETIRED FAMILY PHYSICIAN: needed to work three to five days per week in a small rural clinic. No emergency or hospital work required. Excellent setting with bountiful hunting and fishing opportunities. Located in the heart of Northwest Wisconsin's scenic vacation land. For more information contact Dr. Thomas Fenger, Chief Executive Officer, Indianhead Medical Group, 1020 Lakeshore Drive, Rice Lake, WI 54868. (715) 234-9031 or (715) 354-7939.

INTERNIST/NEPHROLOGIST Available 7/1/83. U. of Minnesota Medical school grad, 1973. Willing to do mostly general internal medicine with emphasis on kidney disease. Write: Minnesota Medicine (730), 2221 University Ave. S.E., Suite 400, Minneapolis, 55414.

LOG HOUSE, 3 bedroom and guest cabin on breathtakingly beautiful LAKE SUPERIOR. Fireplaces, 600' of lakeshore with dramatic cliffs and woods. Lutsen, Minnesota. \$1200 monthly. 920-7537 or 333-8361 (Jim).

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INTERNIST — 29, University trained, ABIM eligible, seeks partnership or group practice in Twin Cities area. Contact David Walcher, 3901 Woodmont Ave., Toledo, Ohio 43613.

LUXURY LAKESHORE ESTATE — Upper Bracket. On Cross Lake, East Central Minnesota, this magnificent self-contained cedar/stone contemporary paradise on 1/3 acre features: 286 Feet lakeshore with swimming beach/35 Foot dock & aerator . . . Great room concept/wrap around decks . . . St. Charles gourmet kitchen . . . Entertainment isle with Jenn-Air, wet-bar, ice maker . . . 2 story California driftstone heatilator fireplace . . . Balconied loft . . . Sunken whirlpool/sauna . . . CA, Central vacuum, total security system . . . Boat house with electric wench . . . 7 day generator, electric furnace with heat pump and MORE . . . For appointment — Patricia Micko 612-451-8240 or 457-6500.

FAMILY PRACTITIONER — Partner in family practice — board certified or eligible. Practice includes OB and PEDS. Located in beautifully scenic college community in northeast Iowa. Ten year old JCAH 97-bed hospital affiliated with Rochester Methodist Hospital, Rochester, Minnesota. Please call or write Drew Pellett MD, 101 College Drive, Decorah, Iowa 52101 (319) 382-2694.

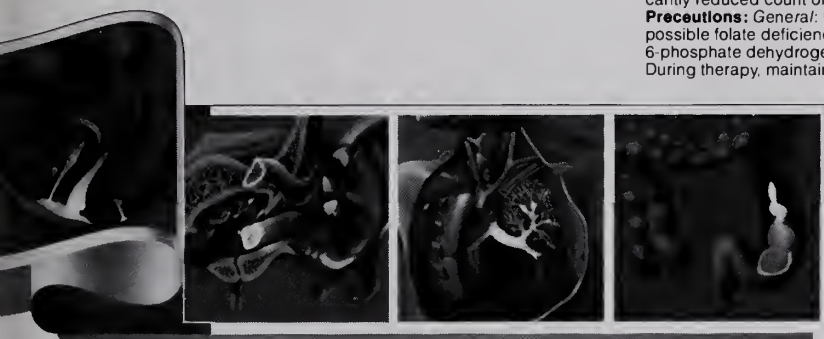
PATHOLOGIST for Locum Tenens — Board Certified (AP/CP) pathologist with experience in cytopathology seeks 1-2 week locum tenens position in Minnesota. Contact Stephen Bartold MD, 1536 Tenth Ave. S.E., Rochester, MN 55901. (507) 281-0377.

PHYSICIAN ASSISTANT with degree in Medical Technology will graduate from UNMC in September and is seeking employment in any subspecialty or family practice. Contact Kay Beune, Dodge, NE 68633; (402) 529-6400.

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Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: Double Strength (DS) tablets, each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100; Tel-E-Dose* packages of 100; Prescription Paks of 20 and 28. Tablets, each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose* packages of 100; Prescription Paks of 40. Pediatric Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry flavored—bottles of 100 ml and 16 oz (1 pint). Suspension, containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).

BACTRIMTM (trimethoprim and sulfamethoxazole/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. **Note:** The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. **Blood dyscrasias:** Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. **Allergic reactions:** Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis.

Gastrointestinal reactions: Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. **CNS reactions:**



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1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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September 1982

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Harold W. Brunn



Douglas A. Shaw

President's Letter



A Changing of the Guard

On September one, a significant change will occur in the MMA staff: Doug Shaw will take over as the Chief Executive Officer, and Harold Brunn, who recently completed 30 years of service to MMA, will remain on board as Executive Vice President and Director of the Division of Special Projects and Development.

A 1949 graduate of the University of Minnesota Law School, Harold Brunn has held many important positions in business and in medicine. Harold joined our staff in 1952. He was Director of Alumni Affairs and Development at Gustavus Adolphus College when Dr. Hans Nilson, a family practitioner and a member of the then MSMA Council, requested he contact Rufus Rosell in regard to a position with MSMA. Rosie Rosell was then executive director of the Association, and Harold was his assistant until Rosie retired in 1958. At that time Harold assumed the post of chief administrative officer.

His distinguished career includes such examples as: serving many years as secretary-treasurer and president of the American Association of Medical Society Executives and the Advisory Committee of the EVP of the AMA; he is currently treasurer of the Professional Convention Management Association, a director of the State Medical Journal Advertising Bureau, and treasurer of MMA's management company for the Minnesota physician-owned professional liability insurance company.

During the past thirty years, all physicians in Minnesota have benefited from the loyal, dedicated service of Harold Brunn. Under his leadership the membership in MMA has doubled. He has seen the staff more than double and the budget quadruple. Harold has steadied the ship as complex economic and legislative issues have battered her stability. During this time he has seen the medical practice in our state change from a basically solo practice to one of group practice. Through his negotiations with third party payers, the financial status of physicians has improved. Most importantly, he has assembled a staff that functions to the betterment of all Minnesota

physicians. Officers and trustees of the MMA come on the scene and then disappear, but one man — Harold Brunn — is most recognized with the letters — MMA. He has often said that his admiration and respect for the medical profession is a major reason for his long service with MMA. We return that same admiration and respect to Harold.

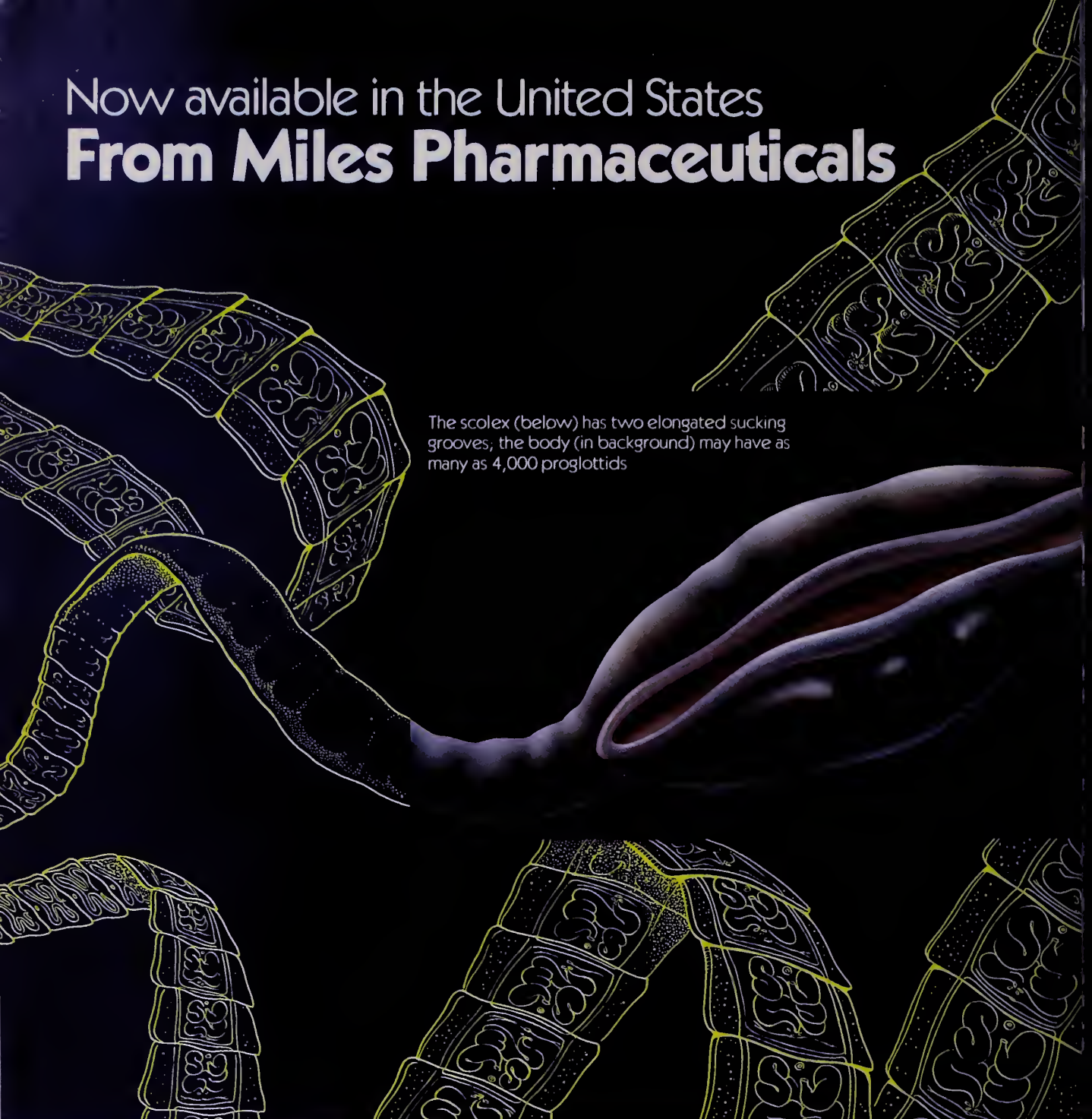
As a member of the Executive Committee of the Board, it was my responsibility and pleasure to join in finding the new chief executive officer. We started interviews in early February and finalized our efforts in early May of 1982. The contestants were all exceptional, making the search difficult and trying. The last candidate interviewed, Doug Shaw, simplified the task. We were all impressed with his quick grasp of the Minnesota medical scene, and after a second interview, we recommended him to the Board of Trustees as our choice for the new CEO.

Doug Shaw's background well prepares him for this new post. He is a Minneapolis native and comes from a medical family. His father is a practicing ophthalmologist in Edina. A graduate of Colorado College, his first employment was with Blue Cross-Blue Shield of Minnesota. In 1974 he joined the Hennepin County Medical Society and was assigned to work on the development of the Physicians' Health Plan. Since 1977 he has been the Assistant Executive Vice President of that Society. Doug sees many challenges ahead, such as: obtaining the most efficient use of our excellent staff, the need to keep the MMA membership cohesive in this day of diverse specialty training, and the importance of both national state priorities in health planning.

Your officers and trustees feel we have assured the strength of your MMA staff for the future by hiring Doug Shaw as the Chief Executive Officer. We have great expectations in his ability to lead the MMA in the coming years.

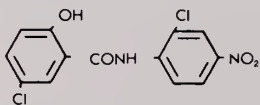
Severin H. Koop, M.D.
President
Minnesota Medical Association

Now available in the United States From Miles Pharmaceuticals



The scolex (below) has two elongated sucking grooves; the body (in background) may have as many as 4,000 proglottids

DESCRIPTION: NICLOCIDE (niclosamide) is an anthelmintic provided in chewable tablet form at a strength of 500 mg per tablet. Niclosamide is 2', 5'-Dichloro-4'-nitrosalicylanilide. The empirical formula is $C_{13}H_6Cl_2N_2O_4$ with the following structural formula.



CLINICAL PHARMACOLOGY: NICLOCIDE inhibits oxidative phosphorylation in the mitochondria of cestodes. Both *in vitro* and *in vivo*, the scolex and proximal segments are killed on contact with the drug. The scolex of the tapeworm, loosened from the gut wall, may be digested in the intestine, and thus may not be identified in the feces even after extensive purging. The use of NICLOCIDE has not been associated with the development of anemia, leukopenia or thrombocytopenia nor have there been any effects on normal renal and hepatic functions.

INDICATIONS AND USAGE: NICLOCIDE (niclosamide) is indicated for the treatment of tapeworm infections by *Taenia saginata* (beef tapeworm), *Diphyllobothrium latum* (fish tapeworm) and *Hymenolepis nana* (dwarf tapeworm).

CONTRAINDICATIONS: NICLOCIDE™ Tablets are contraindicated in individuals who have shown hypersensitivity to any of its components.

PRECAUTIONS: NICLOCIDE affects the cestodes of the intestine only. It is without effect in cysticercosis.

Drug Interactions: No data are available regarding interaction of niclosamide with other drugs.

Carcinogenesis, Mutagenesis, Impairment of fertility:

Carcinogenicity Potential: Although carcinogenicity studies on niclosamide *per se* have not been done, long-term feeding studies on its ethanolamine salt in rats and mice did not show carcinogenicity. Mutagenicity tests have not been performed.

Pregnancy: Pregnancy Category B: Reproduction studies in rabbits and rats at doses of 25 times the human therapeutic dose and in mice at 12 times the human therapeutic dose, have revealed no evidence of impaired fertility or harm to the fetus due to niclosamide. There are, however, no adequate and well-controlled studies in pregnant women. Because animal studies are not always predictive of human response, the drug should be used during pregnancy only if clearly needed.

Nursing Mothers: No studies are available.

Pediatric Use: In children under 2 years of age, the safety of the drug has not been established.

ADVERSE REACTIONS: The incidence of side effects has been reported as follows: nausea/vomiting 4.1%, abdominal discomfort including loss of appetite 3.4%, diarrhea 1.6%, drowsiness, dizziness, and/or headache 1.4%, and skin rash including pruritus and 0.3%. Other side effects listed in decreasing order of frequency were: oral irritation, fever, rectal bleeding, weakness, bad taste in mouth, sweating, palpitations, constipation, alopecia, edema of an arm, backache and irritability. There was also one instance of a transient rise in SGOT in an i.v. narcotic addict. Two cases of urticaria reported may be

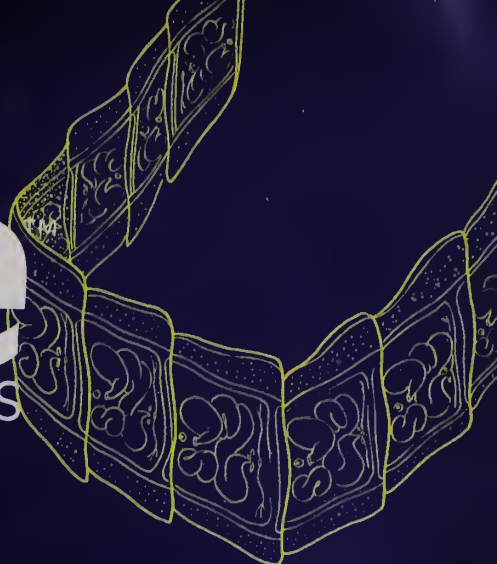
related to the breakdown products of the tapeworm. All effects were mild or moderate and transitory and did not necessitate discontinuation of the treatment.

OVERDOSAGE: Insufficient data are available. In the event of overdose a fast-acting laxative and enema should be given. Vomiting should not be induced.

DOSAGE AND ADMINISTRATION:

1. *Taenia saginata* and *Diphyllobothrium latum*
 - a. Adults: 4 tablets (2.0 g) chewed thoroughly 3 times daily for 7 days.
 - b. Children weighing more than 34 kg (75 lbs): 1 tablet (1.5 g) chewed thoroughly in a single dose.
 - c. Children weighing between 11 and 34 kg (25 to 75 lbs): 2 tablets (1.0 g) chewed thoroughly in a single dose.
 2. *Hymenolepis nana*
 - a. Adults: 4 tablets (2.0 g) chewed thoroughly 3 times daily for 7 days.
 - b. Children weighing more than 34 kg (75 lbs): 1 tablet (1.5 g) chewed thoroughly on the first day and then one tablet (0.5 g) daily for next 6 days.
 - c. Children weighing between 11 and 34 kg (25 to 75 lbs): 1 tablet (1.0 g) to be chewed thoroughly on the first day and then one tablet (0.5 g) daily for next 6 days.
- T. saginata* and *D. latum* infections are usually treated with a single adult worm and require an intermediate host in their life cycle. With *Hymenolepis nana* multiple infections are the rule. No intermediate host is required for both larval and adult stages of the worm may be found in the human intestine where the complete life cycle occurs. Since the drug is more effective against the

NEW Prompt-Action NICLOCIDE NICLOSAMIDE CHEWABLE TABLETS 500 mg.



Safe, reliable single-dose taeniocide that eradicates beef and fish tapeworms in a single day

Highly effective prompt taeniocidal action

NICLOCIDE™ (niclosamide) is considered the drug of choice in eliminating beef tapeworm (*Taenia saginata*), fish or broad tapeworm (*Diphyllobothrium latum*), and dwarf tapeworm (*Hymenolepis nana*) from the intestines. Except for the dwarf tapeworm, which requires a seven-day treatment (SEE FULL PRESCRIBING INFORMATION BELOW), a one-day single-dose treatment is sufficient to eliminate cestodes.

Breaks hold of head and detaches segments

NICLOCIDE works promptly and simply. After tablets are chewed thoroughly and washed down with a little water (for children tablets should be pulverized and mixed

with a little water), the insoluble micronized crystals act by direct contact on the tapeworm head. As soon as NICLOCIDE reaches the parasite, the scolex and upper segments are killed, thus depriving the whole chain of its hold. It is then discharged in stool either in one piece or smaller portions.*

Safe and well tolerated/ little gastrointestinal mucosa irritation

NICLOCIDE has proved exceptionally well accepted by adults as well as children weighing more than 11 Kg. (25 lbs.).

Convenient one-day single-dose administration†

NICLOCIDE Tablets are taken as a single dose after breakfast†. Tablets must be chewed or pulverized thoroughly and washed down with a little water. No special diet or preparation is necessary except in patients who are constipated. In these cases, a thorough cleansing of the bowels may be required before treatment. The avoidance of alcohol during treatment is the only other requirement.

*A drastic saline purge, such as magnesium sulfate or sodium sulfate, should be given two hours after the NICLOCIDE dose if it is required that the tapeworms be expelled rapidly and in one piece.

†In infections with beef tapeworm (*T. saginata*) and fish tapeworm (*D. latum*) one single dose is sufficient; for infections with dwarf tapeworms (*H. nana*) a seven-day treatment is recommended (SEE FULL PRESCRIBING INFORMATION ON THESE PAGES).

aturation than the larval stage, therapy must be extended over several days to cover all stages of maturation. Patients with *H. nana* must be instructed to observe strict personal and environmental hygiene to avoid reinfection with this parasite.

NICLOCIDE™ must be thoroughly chewed and then swallowed with a little water. No special dietary restrictions are necessary before or after treatment. The best time to take the drug is after a light meal (e.g., breakfast). A mild laxative may be desirable in constipated patients to achieve a normal bowel movement. Young children should have the tablets crushed to a fine powder and mixed with a small amount of water to form a paste.

NICLOCIDE has a vanilla taste which is not unpleasant to most persons.

NICLOCIDE is suitable for administration on an ambulatory or outpatient basis.

Follow-up: The vermiform action of NICLOCIDE renders the tapeworm, especially the scolex and proximal segments, vulnerable to destruction during their passage through the gut, it is not always possible to identify the scolex in stools. The sooner the tapeworm is passed and examined after treatment, the better the chance of identification of the scolex. Segments and/or ova of beef or fish tapeworm may be present in the stool for up to 3 days after therapy. Persistent *T. saginata* or *D. latum* segments and/or ova on the seventh day post therapy indicate failure. A second identical course of

treatment may be given at that time.

No patient should be considered cured unless the stool has been negative for a minimum of three months.

HOW SUPPLIED: NICLOCIDE is available as round, light yellow chewable tablets, scored on one side, embossed with the word Miles and number 721, each containing 500 mg of niclosamide, and is supplied in boxes of 4 tablets.

Storage Conditions: Store below 86°F (30°C), avoid freezing.

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Editor's Notebook

The State of the People's Health

"I regard Minnesota as a very desirable country to migrate to," wrote a New Englander in 1852, "on account of its healthful climate." In Minnesota immigrants would be free from disease. Minnesota, he continued, possessed a climate which for purity and salubrity was not equaled by any area east of the Rocky Mountains. Buoyant enthusiasm for Minnesota's climate was widespread. From early days travelers had commented on its bracing air, its healthful scent of pine and spruce, and its ability to make a sick man well and a well man better."

Philip D. Jordan, *The People's Health*,
Minnesota Historical Society, 1952

Minnesota has a long tradition as a state of good health. With that in mind, in 1976 I wrote a tongue-in-cheek editorial touting the long life expectancy in Minnesota.¹ I acclaimed the large number of centenarians living in our state, cited 1974 U.S. Government statistics listing Minnesota as the number two state in longevity (after Hawaii), described the living habits of the world's centenarians, and repeated these maxims of Satchell Paige for a long life (Satchell died prematurely this year at 78):

Avoid fried foods which angry up the blood.

If your stomach disputes you, lie down and pacify it with cool thoughts.

Keep the juices flowing by jangling around gently as you move.

Go very light on the vices, such as carrying on in society – the social ramble ain't restful.

Avoid running at all times.

And don't look back. Something might be gaining on you.

I ended that editorial with these words:

"To live to be one hundred: pick your parents, stay lean, keep moving, stop smoking, drink lightly, remain calm, chase girls (or boys), sleep well, ignore your enemies, climb mountains, don't retire, and if Ecuador, Kashmir, Soviet Georgia, Northern Europe and Hawaii are not your cups of tea, live in Minnesota."

I thought the editorial was clever. So did the *Associated Press*, which picked it up and bandied it about the country on its wire services. But in hindsight, I can see I was just a Johnny-come-lately to the Health Movement.

The American People

The American people were ahead of me. They were already changing their health habits and had been since about 1965. Perhaps the changes were occurring because of the Surgeon General's Report on Smoking in 1965, or because of the American Heart Association's Report on Diet and Heart Disease that same year. Or maybe exploding health care costs after the passage of Medicare and Medicaid in 1965 woke them up. Whatever the reasons, by 1977 Americans were smoking less, drinking less milk, downing less cream, and cutting down on butter, eggs, and animal fats (Table 1).²

EDITOR'S NOTEBOOK

TABLE 1

Change in Per Capita Consumption in the United States between 1963 and 1977²

Product Consumed	Change in Per Capita Consumption
All tobacco products	29.3% decline
Fluid milk and cream	22.5% decline
Butter	32.6% decline
Eggs	14.4% decline
Animal Fats and oils	47.4% decline

And exercise? Well, exercise has become a national craze. Here is how *Discover*, a popular science magazine, describes our current national passion for fitness:

"From before dawn until long after dusk, winter and summer, fair weather and foul, they pound along over country lanes, suburban streets, and city parks; the joggers, 20 million strong, an army of the fit, fanatically striving for perpetual youth and good health. Add in the hordes of tennis players, cross-country skiers, Nautilus pumpers, aerobic dancers, long-distance walkers and swimmers, and there may be 72 million Americans pursuing the now religion — fitness."³

With these changes in life habits came improved medical technologies — coronary care units, beta-blocker drugs, coronary bypass surgery, new radiographic techniques, and cardiac pacemakers.

Downward Trend

Soon a downward trend became evident in death rates, particularly in cardiovascular diseases. By 1975, this trend was well-established.⁴

TABLE 2

Decline in Coronary Mortality, 1963 to 1975, in the United States⁴

Age Groups (Years)	Percent Mortality Decline
35-44	27.2%
45-54	27.4%
55-64	23.5
65-74	25.0
75-84	12.8
85 and above	19.3

By 1978 the reduction in cardiac and stroke mortality for all age groups in both sexes and all races was 25 percent. The United States was unique in the world in terms of the magnitude of the decline.⁵ An NIH conference concluded the decline was due to a combination of preventive medicine, risk factor reduction, and improved medical care. Stamler, writing in the *American Journal of Cardiology*, argued changes in diet with the resultant drop in mean serum cholesterol levels alone could account for the declining mortality.⁶

Improving Health

In any event, by 1978 it was clear Americans' health was on the upswing. Death rates were dropping, and longevity was increasing. Stroke deaths were down 37 percent, heart attacks 25 percent, and noncardiovascular diseases 10 percent.² From 1970 to 1980, Americans added 3.1 years to their life expectancy (compared to 0.8 years in the 1960s), bringing the overall life expectancy up to 73.8 years.²

This same jump in longevity has taken place in Minnesota. Elsewhere in this issue, Paul Gunderson, Director of the Minnesota Center for Health Statistics at the Minnesota Department of Health, says that Minnesota males now being born can expect to live 72 years while Minnesota females at birth can anticipate 79 years of life.⁷ If you're 30 and a Minnesota male, you can look forward to a lifespan of 74 years. For a 30 year old Minnesota woman, the figure is now 80 years.*

*Page 549.

What Does It All Mean?

What do all these figures mean? To me, they mean at least three things:

1. The figures mean you *can* improve your health by consuming less animal fats, eggs, and dairy products (according to figures in our laboratory, the mean serum cholesterol for our patient population has declined about 15 mg/100 ml in the last ten years); by stopping smoking (25 percent of American smokers have quit); by staying a little leaner (the proportion of overweight persons has decreased 3.4 percent for men and 5.2 percent for women);⁸ by exercising (about 30 percent of adult Americans now exercise regularly); and by controlling your hypertension (Federal surveys between 1973 and 1978 indicate considerable improvement in the public's awareness of the importance of controlling hypertension).⁹ You can even modify your drinking patterns (wine has replaced hard liquor as Americans' favorite alcoholic drink).

2. The figures mean that certain causes of premature death are worth concentrating on. These include cardiovascular disease, smoking-related diseases, and alcoholism. If one were to eliminate magically the two leading causes of death — heart attack and stroke — 18 years of additional life could be expected (Table 3).¹⁰ If the third leading cause of death — cancer — were eliminated, two years of additional life expectancy would result (Table 3). What would happen if smoking and alcohol-related diseases were eliminated is harder to document, but a recent Canadian study indicates 18 percent of all premature deaths from one to 70 are attributable to cigarette smoking and excessive drinking.¹¹

TABLE 3

Gain in Life Expectancy by Eliminating Various Causes of Death.¹⁰

<u>Causes of Death</u>	<u>Gains in Years of Life if Cause Eliminated</u>	
	<u>At Birth</u>	<u>At Age 65</u>
Major cardiovascular-renal diseases	10.9	10.0
Heart Diseases	5.9	4.9
Vascular diseases affecting nervous system	1.3	1.2
Malignant neoplasms	2.3	1.2
Accidents, excluding those caused by motor vehicles	0.6	0.1
Motor Vehicle accidents	0.6	0.1
Influenza and pneumonia	0.5	0.2
Infectious diseases	0.2	0.1
Diabetes mellitus	0.2	0.2
Tuberculosis	0.1	0.0

3. The figures mean that today's health promotion efforts may very well be worthwhile. According to Lester Breslow, Dean of the School of Public Health at the University of California and author of a classic paper showing most premature death was due to poor health habits, what America needs is a positive strategy for health.^{12,13} This strategy should include: (1) environmental control measures, including labeling food packages to show amounts of salt and sugar, and financial aid to convert tobacco land to constructive use, (2) financial arrangements to pay physicians and others to favor preventive measures and health maintenance programs, and (3) creating a social milieu to help Americans to adopt habits that contribute to their health.

Minnesota Health Promotion

This social milieu is already evolving in Minnesota, and all sectors of society are contributing: (1) in 1979 the Minnesota Medical Association formed a Health Care Cost Commission that recommended health promotion by physicians in their offices, by third parties, and by businesses¹⁴ (The Commission with the help of the Minnesota Health Department has also published a booklet calling for health promotion in the workplace)¹⁵; (2) the Minnesota Department of Health has formed a committee of public health experts to define Minnesota's major health problems;¹⁶ (3) Minnesota business corporations have been in the forefront of wellness programs (Control Data designed its self-help management program, now called StayWell in 1977); (4) the Governor's Council on Health Promotion

EDITOR'S NOTEBOOK

and Wellness has launched a wellness campaign which will culminate in Wellness Week, October 3 to 9, to be kicked off by the First Twin Cities Marathon on October 3; and (5) Blue Cross and Blue Shield are now speaking of health promotion in their newsletter and has designed a questionnaire featuring a health score.

Impact on Physicians

What impact will this new health awareness have on practicing physicians? I'm not sure. But in the short run, I would predict you'll be seeing more fitness related injuries (in this issue, we're starting a "Sports Medicine, Fitness, and Nutrition Corner" to describe those injuries*); you'll be asked more questions about how to reduce risk factors; you'll need to know more about fitness and nutrition (and Minnesota Medicine will provide you with more information); you'll be seeing more patients referred from wellness programs for hypertension, weight, and hyperlipidemia control; and you'll be evaluating more patients to see if they're fit enough to undertake vigorous exercise programs. In the long run, you'll be seeing few tragic premature deaths. And you'll be thinking more about your own health. So here's to your health. May you live to be one hundred.

*Page 543.



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Annual Meeting
Minnesota Medical Association
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Intrapartum Management of Pregnant Patients with Immunologic Thrombocytopenic Purpura

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and G. ERIC KNOX, M.D.*

ALTHOUGH RELATIVELY rare in occurrence (1-2/10,000 live births), immunologic thrombocytopenic purpura (ITP) is the most common auto-immune hematologic disorder associated with pregnancy.¹ Antenatal management of pregnant patients with ITP, although complex, is not controversial. Successful treatment resulting in low maternal morbidity may include serial platelet counts, steroids, splenectomy, and immunosuppressants, either singly or in combination, depending on the past history and present status of the patient.² By contrast, the issues concerning preferred method of delivery have not been completely resolved. Cesarean section, while theoretically able to prevent neonatal intracranial hemorrhage, is associated with increased maternal mortality and morbidity. Moreover, the clinical problem is compounded because no antenatal test is available which successfully delineates only infants at risk. The purpose of this case report is to suggest that an intrapartum fetal platelet count be utilized as the diagnostic test around which an objective individualized plan for delivery be developed.

Case Report

The patient was a 32-year-old gravida 1, para 0 who had a splenectomy in 1975 for ITP having failed to respond to steroid therapy. Post splenectomy the patient had not required medication and her platelet counts were normal. She underwent a D & C and laparoscopy for infertility work-up in 1980 without incident. Her general physical examination was unremarkable, no petechiae were noted and the prenatal course was normal. At 42 weeks gestation, the patient was admitted in active labor. Examination revealed the cervix to be dilated 3 cm with a vertex presenting and membranes intact. A maternal platelet count was 285,000/cubic millimeter. Amniotomy was performed revealing meconium stained amniotic fluid. Fetal scalp blood sampling suggested the fetal platelet count to be in excess of 50,000/cubic millimeter.

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On this basis, labor was allowed to continue. Four hours later fetal heart rate monitoring revealed severe, variable decelerations unresponsive to change in position or oxygen administration. Cesarean section delivery was performed and a 3410 gram male infant with apgars of 3 and 9 at one and five minutes respectively was delivered without difficulty. The umbilical cord platelet count was 349,000/cubic millimeter while the neonatal peripheral platelet count was 359,000/cubic millimeter. The mother's post operative course and the neonatal course were unremarkable.

Discussion

The pregnant patient with ITP is usually managed antenatally in the same manner as her non-pregnant counterpart. Although steroids and splenectomy pose theoretical risks to the fetus, this management program has resulted in low maternal morbidity and no reported maternal deaths from ITP in the past three decades and is therefore generally accepted.

By contrast, infant morbidity and mortality is another issue. Despite optimal antenatal and intrapartum maternal management, perinatal morbidity and mortality may be as high as 20%, mainly the result of CNS bleeding secondary to neonatal thrombocytopenia.³ Although most authorities agree that vaginal delivery should be avoided if fetal thrombocytopenia exists, controversy persists because current approaches aimed at determining the actual fetal platelet count are indirect with resulting lack of sensitivity and specificity. For example, Territo and colleagues⁴ demonstrated that if the maternal platelet count was greater than 100,000/cubic millimeter, 27% of the infants in their study had a platelet count less than 100,000/cubic millimeter, whereas if the maternal platelet count was less than 100,000/cubic millimeter, 79% of fetuses had a platelet count less than 100,000/cubic millimeter. Therefore, although a relationship between the maternal and fetal platelet counts exist, the lack of sensitivity when applied to an individual patient precludes clinical usefulness.

The increased maternal mortality and morbidity associated with cesarean section preclude this clinical action as a universal solution of the problem.

Based on the work of Scott et al.⁵ and as demonstrated in the case reported, it is now possible to add objectivity to the decision regarding the mode of delivery in pregnant patients with ITP. By obtaining fetal blood through the technique of fetal scalp sampling it is possible to determine the platelet count of that blood. A review of existing literature suggests that newborns experienced no morbidity during vaginal delivery when the fetal platelet count was greater than 50,000/cubic millimeter.

More recently, Karpatkin and colleagues⁶ have shown in a small group of patients that if steroids were administered to the mothers 10-14 days prior to delivery, all neonatal platelet counts were greater than 65,000/cubic millimeter. It was postulated that

steroids may elevate the platelet count by reducing the production of antibody, inhibiting the binding of antibody to the platelet surface, or retarding the phagocytosis of opsonized platelets. If this experience remains universal as more patients are studied, the need for fetal platelet counts will be eliminated. In the meantime taking all recently published data into consideration, the following is recommended in managing the pregnant patient with ITP at the time of delivery: (1) Administration of steroids to the mother 10-14 days prior to delivery; (2) Determination of fetal platelet count early in labor utilizing the technique of fetal scalp blood sampling; (3) Allow vaginal delivery if the fetal platelet count is greater than 50,000/cubic millimeter, reserving cesarean section only if the platelet count is less than 50,000/cubic millimeter or for other obstetric indications.

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Continuing Medical Education

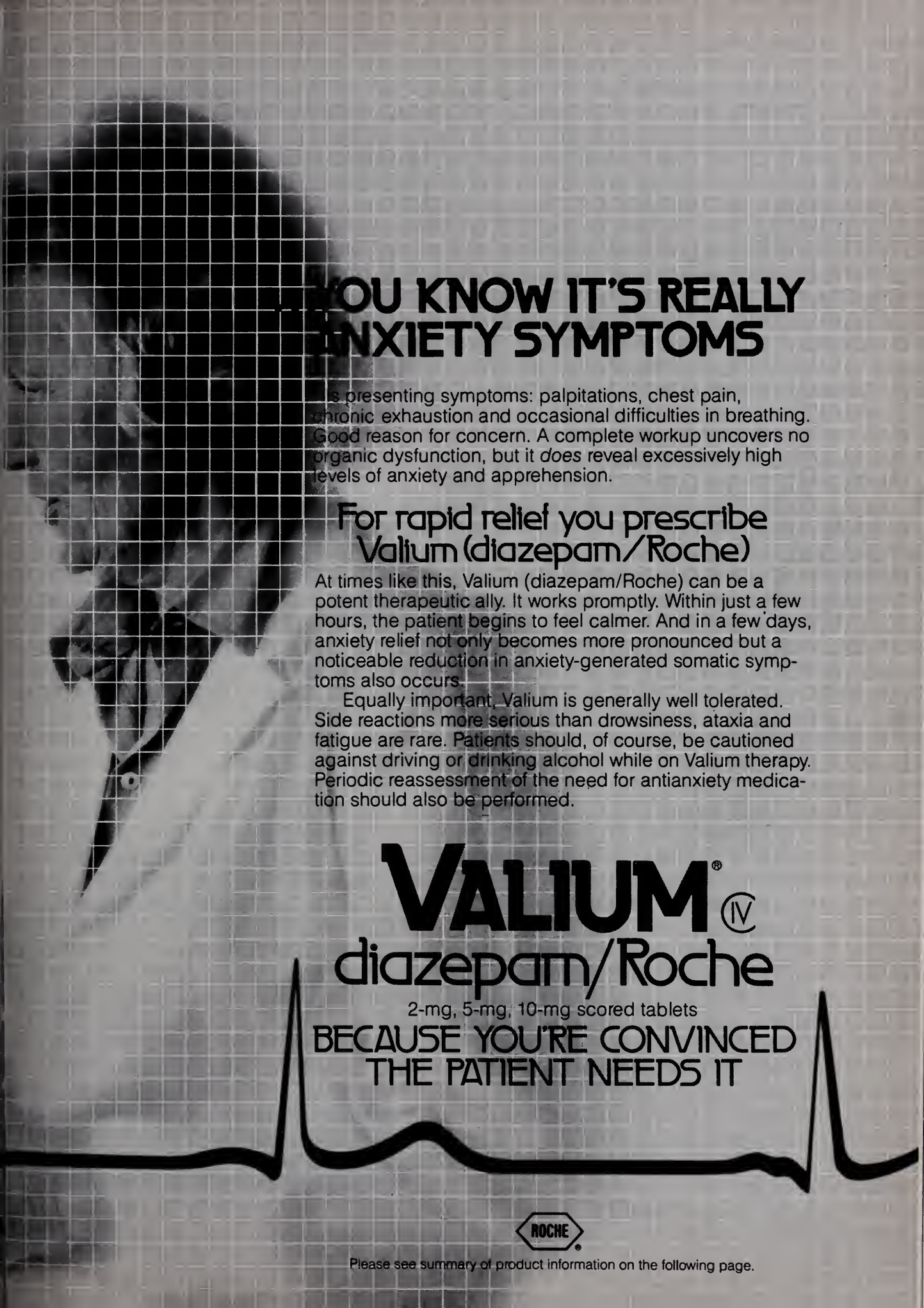
John R. Sebold Symposium

Bethesda Lutheran Medical Center, in co-operation with Metropolitan Hand Surgery Associates, P.A., will present the Annual John R. Sebold symposium on Friday October 8, 1982 in the O'Shaughnessy Education Center at St. Thomas College, St. Paul. This year's symposium will be "Sports Injuries of the Upper Extremity." There will be several local speakers and a featured guest speaker, Dr. Graham Lister from Louisville, Kentucky. The program will include workshops and lectures for physicians, therapists, nurses and other persons interested in sports injuries.

For further information contact: Sally Bandt, Medical staff coordinator, Bethesda Lutheran Medical Center, 559 Capitol Boulevard, St. Paul, Minn. 55103 (612) 221-1753

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Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Use in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. **Adults.** Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients.** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children.** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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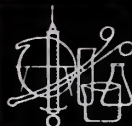


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Urologic Evaluation and Treatment of the Myelodysplastic Child

RICARDO GONZALEZ, M.D.,* CURTIS A. SHELDON, M.D.† and JUAN M. GUZMAN, M.D.‡

The myelodysplastic child has bladder dysfunction because of detrusor-sphincter dyssynergia. The ensuing complications threaten renal function. We describe a system for evaluating and managing these patients so as to achieve a continent bladder with low intravesical pressure, absence of reflux, and freedom from infection.

CHILDREN BORN WITH malformations of the distal spinal cord have some degree of bladder dysfunction, often resulting from dyssynergic contractions of the detrusor and the sphincter mechanism. The vesicoureteral reflux, residual urine, functional or anatomic obstruction, infection and lithiasis that may ensue threaten renal function. These children usually have many problems that make them challenging to manage, and they should be cared for by a team of specialists directed by a pediatrician.

In a myelodysplastic child, the urologist's goals are to prevent deterioration of the kidneys and, after the child is 5 years old, to provide a socially acceptable form of urine collection. This article describes a system for urologic evaluation and management of these patients that has demonstrated its utility at the University of Minnesota. Identical principles are applicable to patients with neurogenic bladders from other causes, such as sacral agenesis and spinal cord tumors.

First Five Years of Life

The initial urologic evaluation must be completed during the neonatal period as soon as the infant's condition permits. It should include a general neurological examination, voiding cystourethrography to determine the extent of bladder emptying and to detect reflux or anatomical anomalies, excretory urography, urinalysis and culture, and determination of the serum creatinine and blood urea nitrogen levels. On the basis of the results, patients are classified into one of four groups, re-

flecting the extent of the threat to their renal function (Table 1). Infection worsens the prognosis in all groups.

For children in group I, the prognosis for renal function is good, and their principle problem will be incontinence. We do urine cultures on these patients every 3 to 4 months and radionuclide voiding cystograms and excretory urograms once a year. For some patients, reclassification into another group will be appropriate. A few will prove to have dyssynergia, which can be difficult to detect during the first years of life and which increases the risk of renal damage. Urethral pressure profiles may aid in the identification of these children; sphincter pressures above 40 cm of water suggest dyssynergia and pressures above 80 cm are virtually conclusive.¹ Bladder trabeculation is indirect evidence of dyssynergy.

The residual urine in patients in group II suggests dyssynergia, although it does not prove it. These children have a greater risk of infection than do those in group I. Most void by overflow without problems, although a few have hydronephrosis and uremia because of the chronically distended bladder. As long as the intravesical pressure remains low, the residual urine generally is well tolerated, although imprudent use of manual compression (the Crede maneuver) may prove damaging. Some of these children will be found to have reflux when they are older. In patients in group II, we do urine cultures and serum creatinine determinations every 3 months, radionuclide voiding cystograms every 6 months, and annual urograms as long

TABLE 1

Group	Reflux	Hydronephrosis	Residual Urine
I	No	No	No
II	No	No	Yes
III	Yes	No	Yes or No
IV	Yes	Yes	Usually

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as there is no reflux.

If there are repeated infections, or if hydronephrosis appears, with or without reflux, better bladder drainage is necessary. This can be accomplished by intermittent catheterization,² cutaneous vesicostomy,³ or, in boys, transurethral external sphincterotomy.⁴ In these patients, catheterization 4 to 6 times daily by the adults in charge of the child is favored because of its simplicity, although parents may be unable to do it in newborn girls. Also, it always carries a risk of infection, a particularly serious concern in boys because the urethra, prostate, epididymes, and testes may become involved. When this drainage method is used, monthly urine cultures are necessary. As a rule, we prescribe prophylactic doses (one-third of the daily therapeutic dose) of nitrofurantoin or Trimethoprim for children on intermittent catheterization as well as for those with recurrent infections and girls with residual urine.

In the patients in group III, dyssynergia causes reflux even if there is no residual urine, and these children unquestionably require antibacterial prophylaxis. If reflux persists after a few months, the intravesical pressure must be reduced by one of the methods mentioned. In the newborn, cutaneous vesicostomy is the simplest and most satisfactory method. It also is indicated in infants who do not tolerate intermittent catheterization, and in patients not considered suitable for antireflux operations. We prefer extravesical procedures in children who will be having antireflux operations.⁵ After an antireflux operation, measures to decrease the intravesical pressure (e.g., intermittent catheterization) must continue; otherwise recurrence of reflux is inevitable.

Patients in group IV have a high risk of renal damage, and steps must be taken immediately to reduce the intravesical pressure. If ureteral dilatation is marked, we prefer cutaneous vesicostomy to immediate surgical correction of reflux. In a few children, supravescical diversion by a colonic conduit or ileocecal segment with antireflux anastomoses is the only way to arrest deterioration of the kidneys.⁶

After Age Five

Five years is designated arbitrarily as the age at which continence becomes a consideration in the treatment of these children. A delay may be acceptable in those whose slow mental development precludes their starting school until later and may be necessary in others because of orthopedic or neurological problems. Excluding these cases, we prefer to begin anti-incontinence measures when the child is 5 to assist the psychosocial development. Of course, we continue to monitor renal function, infection, and anatomical condition.

TABLE 2

Category	Continent	Retention	Drainage
1	Yes	No	Spontaneous micturition
2	No	No	Spontaneous micturition
3	Yes	Yes	Intermittent catheterization
4	No	Yes	Intermittent catheterization
5	No	—	Cutaneous vesicostomy
6	—	—	Supravescical diversion

The status of the child at age 5 depends on the treatment and the progress of the disease to that time (Table 2). Children in categories 2-4 are evaluated urodynamically to learn the functional condition of the lower urinary tract. The history and physical examination should include details of the voiding habits. The necessary studies are a cystometrogram (to assess the contractility of the detrusor), video voiding cystourethrography (which shows the condition of the bladder neck), and evaluation of the function of the external urethral sphincter and its synergy with the detrusor, which can be by a simultaneous cystometrogram and electromyography of the perineal muscles or by anesthetic block of the external sphincter and evaluation of the residual urine and urinary flow. The urinary flow measurement provides a noninvasive indication of the efficacy of methods to improve bladder emptying.

On the basis of these studies, patients can be categorized as described by Guzman et al.⁷ Bear in mind that patients can be converted from one group to another by pharmacologic or surgical means in order to better apply the desired treatments.

As a rule, patients in group A are good candidates for implantation of artificial sphincters.^{8,9} Other measures usually fail because of insufficient outlet resistance. Patients who are not in this group spontaneously can be made so by operations to decrease urethral resistance⁴ or to increase bladder capacity and decrease intravesical pressure¹⁰ or by anticholinergic drugs.

The patients in Guzman's group C usually come from categories 2, 4, and 5. Any reflux should be corrected surgically. Usually, these children do well with intermittent catheterization every 4 to 6 hours and prophylactic antimicrobial drugs. If the patient is incontinent between catheterizations, one can try decreasing the intravesical pressure with anticholinergic drugs or increasing the tonus of the vesical neck with alpha-adrenergic agents. Other helpful measures are lowering fluid intake and, when practical, catheterizing more often. In girls in whom these measures prove insufficient, we consider surgical methods to increase outlet resistance, such as the Young-Dees or Tanagho operations. Afterward, the girl continues with intermittent catheterization. In boys, we prefer to perform transurethral external sphincterotomy and then implant

an artificial sphincter. Some of these children will need cholinergic drugs to empty their bladders completely.

Patients in group B have a high risk of renal deterioration and so usually have received a cutaneous vesicostomy, although a few will have been managed by catheterization and large doses of anticholinergic drugs. The latter patients are, in effect, in group C and may continue on that regimen if continent. The same cases that are resistant to those drugs can be converted to group C by enterocystoplasty to increase bladder capacity and decrease intravesical pressure.

Patients in group D can be converted to group A by the methods outlined and then managed by implanting an artificial sphincter. As an alternative, in girls (in whom artificial sphincters have been less successful) we consider operating to increase urethral resistance and make intermittent catheterization practical.

With these methods and guidelines, we can treat all patients with vesical dysfunction so as to provide complete bladder emptying. Continence is achieved by artificial sphincters or by intermittent catheterization alone or with the assistance of anticholinergic drugs or operations to increase urethral resistance.

Post-Diversion Patients

At present, supraventricular diversion is used only exceptionally in the treatment of neurogenic bladders and then not necessarily as a permanent measure. However, that was not the prevailing philosophy a decade ago,¹⁴ and for this reason there are many young people with intestinal conduits whose further management requires careful thought. In patients with freely refluxing ileal conduits, there is great risk of progressive hydronephrosis, chronic pyelonephritis, renal lithiasis, and renal failure.^{15,16} Stomal stenosis is common. The long-term results of nonrefluxing colonic conduits are unknown, although in theory they should be superior to those of refluxing conduits.¹⁷

When complications appear in the child with an ileal conduit, total reconstruction of the urinary tract must

be considered. In addition to these modified indications for the operation, there are psychological ones; the presence of a stoma is detrimental to the child's development. The tactical and technical problems of such reconstruction have been discussed by other authors,^{18,19} so we will not review them. Suffice it to say that the preoperative evaluation of the de-functionalized tract is critical for the planning of the operation and later treatment.²⁰ The goals of total urinary reconstruction are avoidance of vesicoureteral reflux, prevention of infection, achievement of total bladder emptying either spontaneously or by catheterization, and maintenance of low intravesical pressure.

In children with refluxing conduits in whom total reconstruction is nearly impossible (e.g., after cystectomy), it may be justifiable to convert the patient to a nonrefluxing system such as a sigmoid conduit with anti-reflux anastomoses or an ileocecal conduit. Ureterosigmoidostomy is not acceptable in patients with neurogenic bladders because their rectal sphincter tone and rectal emptying are not adequate. All patients with supraventricular diversion or reconstructed urinary tracts need life-long followup with cultures, excretory urography, and renal-function studies to detect serious late complications.

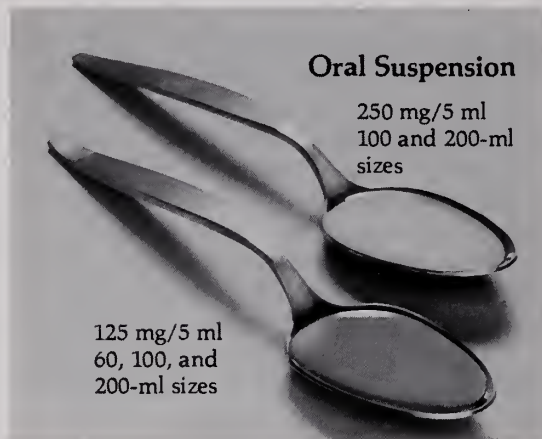
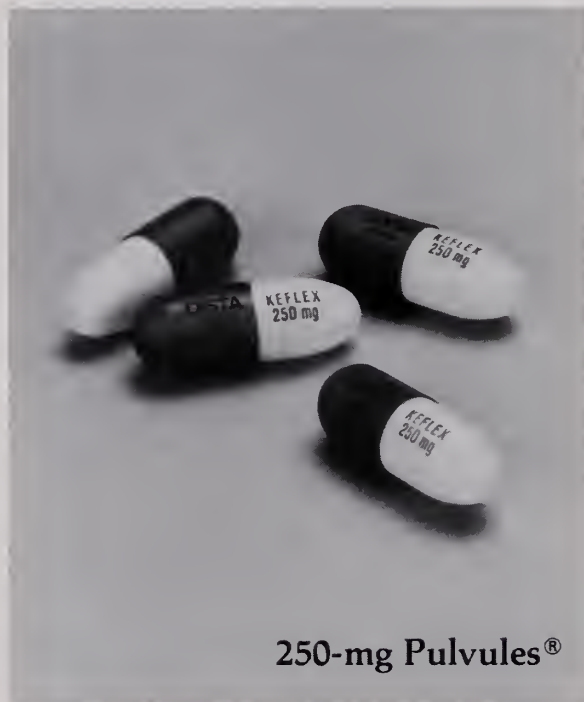
Conclusion

It has not been our intention here to discuss every possible situation or the technical details and long-term results of every treatment proposed; such information can be found in the literature. We have enunciated the principles for the treatment of the child with myelomeningocele, emphasizing the need for careful tailoring of each therapeutic maneuver to the patient's situation and the importance of preserving the anatomical integrity of the urinary tract. We have emphasized the risk to renal function that detrusor-sphincter dys-synergia carries with it. The goal in every patient is a continent bladder with low intravesical pressure and absence of vesicoureteral reflux.

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Duodenal Obstruction, Annular Pancreas, and Horseshoe Kidney in An Infant with Cornelia De Lange Syndrome

MARK R. WICK, M.D.;* PATRICIA S. SIMMONS, M.D.;† JURGEN LUDWIG, M.D.‡
and FREDRIC KLEINBERG, M.D.§

An annular pancreas with associated duodenal obliteration and a horseshoe kidney were found in an infant with the Cornelia de Lange syndrome. We are not aware of a previously described case of this constellation of abnormalities, which raises certain etiologic questions regarding this unusual clinical syndrome.

THE CORNELIA DE LANGE syndrome was first described in 1933.¹ Since then, additional reports have characterized the condition further. Infants with the de Lange syndrome have a characteristic growling cry, "leprechaunoid" facies, and profound mental retardation. Hirsutism, muscular hypertonicity and hypertrophy, cutis marmorata, and phocomelia are often present as well. The diagnosis of this entity is based on external appearance and the child's cry. These criteria are similar to those used in diagnosing other congenital anomalies, such as the Down syndrome and the cri-du-chat syndrome; however, in contrast to these conditions, the de Lange syndrome has not been accompanied consistently by chromosomal aberrations. A Mendelian mode of inheritance is also lacking.²

We have observed an infant with the Cornelia de Lange syndrome, who, in addition, had an annular pancreas with acquired duodenal obstruction and a horseshoe kidney, found at autopsy. We are not aware of a previous report of this group of malformations, which provides a focus for consideration of possible pathogenetic mechanisms underlying this clinical entity.

Case Report

The patient was a 1070-g white male born after 32 weeks of gestation to a healthy gravida 1, para 0, 23-year-old white woman. The mother had taken no medications or alcohol and knew of no exposure to toxic substances. The family history was unremarkable. Ultrasound examination at 27 weeks had disclosed hydramnios. The mother had spontaneous premature labor, with the infant in vertex presentation. Vaginal delivery was achieved without complications.

The baby was small for gestational age, and his cry was low-pitched. Other physical findings were compatible with the diagnosis of the Cornelia de Lange syndrome, as previously delineated² (Figure 1 (A)).

Because his efforts at feeding were feeble, the infant was subjected to repeated attempts at gavage, beginning on the third day of life. However, this treatment caused either vomiting or stasis of

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Fig. 1. (A) — External appearance of patient, characteristic of Cornelia de Lange syndrome. Note peculiar facies, hirsutism, and redundant skin.

gastric contents, with large residual volumes. The vomitus was often bile-stained.

A study of the upper gastrointestinal tract done on the 10th day of life disclosed free reflux of barium contrast medium into the pancreatic duct and biliary tree; however, some barium did pass through the duodenum into the jejunum (Figure 1 (B)). Plain roentgenograms of the skull, long bones, and thorax and a barium study of the colon were interpreted as normal. Results of laboratory tests included a normal 46,XY karyotype.

The baby was never able to take adequate nutrition and required intravenous fluids. He died on the 25th day after birth.

A complete autopsy was performed. The pancreas was annular, and it obliterated the second (pancreatic) portion of the duodenum (Figure 2). Proximal to this obstruction, the duodenum and the gastric antrum were moderately dilated. A 1-mm probe could not be passed through the obstructed segment, and histologic sections of it revealed no persistent lumen. The liver showed evidence of extrahepatic biliary obstruction — namely, cholestasis and proliferation of interlobular bile ducts and ductules. The common bile duct was seen to enter blindly into the duodenum within the obliterated portion.

A horseshoe kidney was found, having two ureters. Both testes were undescended. There was histologic evidence of bronchopneumonia, and of mild cerebral hypoxia. No other remarkable abnormalities were apparent.

Discussion

Few children with the Cornelia de Lange syndrome have been the subjects of postmortem examination.² It is our opinion that detailed anatomic study of these



Fig. 1 (B) — Upper gastrointestinal roentgenogram with barium contrast medium, taken on 10th day of life. Some barium passes through duodenum into jejunum. Reflux into bile ducts and pancreatic duct is evident, and these structures are significantly dilated.

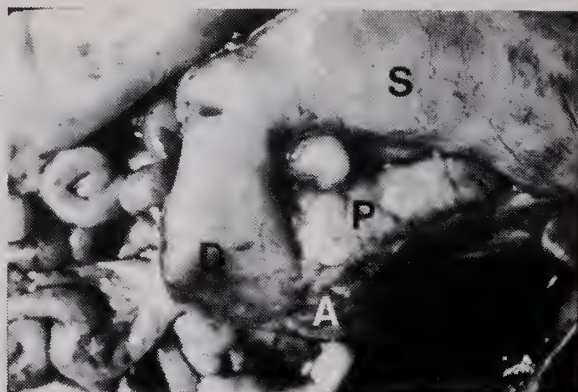


Fig. 2 — Autopsy appearance of stomach (S), duodenum (D), and pancreas (P). Annular pancreas (A) surrounds second portion of duodenum. Gastric antrum and duodenal bulb are dilated.

cases is important for eventual elucidation of underlying pathophysiologic mechanisms. Despite the paucity of such investigations, significant similarities have been discovered. Several other authors have called attention to gastrointestinal anomalies that have been encountered in the Cornelia de Lange syndrome. Colonic duplication, pyloric stenosis, malrotation, and obstruction due to fibrous bands have been described previously.³⁻⁷ Urologic aberrations, such as a single median kidney with one ureter, have also been reported.⁸

These observations therefore suggest that our patient's annular pancreas, duodenal obstruction, and horseshoe kidney are likely to have been associated with the de Lange syndrome. The duodenal obstruction undoubtedly occurred gradually, during the perinatal period. Supportive evidence for this opinion is provided by the infant's bilious regurgitation, the radiographically proven reflux of barium into the biliary tree, and the history of maternal hydramnios 5 weeks before birth.

Convincing evidence of duodenal luminal obliteration within the pancreatic annulus was found at autopsy. The mechanism for such closure is uncertain, because annular pancreas rarely causes complete obstruction.⁹ This finding is also confusing in our case, since duodenal patency was demonstrated roentgenologically on the 10th day of life. Other authors have suggested that an annular pancreas may coexist with duodenal stenosis and yet be unrelated to it causally.¹⁰ However, we would propose that the annular pancreas may have grown more rapidly than the duodenum it surrounded, ultimately obliterating the lumen in the last 15 days before death.

Embryologically, the digestive and urologic abnormalities observed in this case are likely to be related through a common denominator, for both the ascent of

the kidneys from the pelvis and the dorsal rotation of the ventral pancreatic bud occur at the sixth to seventh week of gestation.¹¹ Thus, though we have not found a previous description of the coexistence of these anomalies in the Cornelia de Lange syndrome, they raise once again the remote possibility of environmental (teratogenic) influences in the pathogenesis of this clinical entity. Admittedly, little substantial evidence has accrued in favor of such contributing elements.

Nonetheless, chromosomal and genetic studies have likewise been inconclusive, leaving the etiology as yet unsettled.²

Therefore, we felt it desirable to report this case, primarily to provide additional morphologic data for future analysis, but also to direct attention to the possible occurrence of annular pancreas or duodenal obstruction and urologic anomalies in other patients with the de Lange syndrome.

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Elbow Injuries in Sports†

JAMES D. PRIEST, M.D.*

THE ELBOW is a frequently injured joint in sports. Such injuries occur in many different sports and are frequently specific to the sport or activity.

Anatomy

The elbow joint is intricate, allowing flexion, extension, and rotation of the forearm, wrist, and hand. This joint is located where the two forearm bones, the radius and ulna, join with the single arm bone, the humerus (Figure 1). The ulna connects with the humerus at the elbow in such a way that the two bones act like a hinge for bending and straightening. The radius has a flat end, rounded at the edges, and joins with the humerus. This permits rotation of the radius at the elbow, allowing the palm of the hand to be turned upward or downward with ease. Ligaments are tough, gristly structures that connect the bones together and prevent the elbow from bending in the wrong directions.

The elbow has three prominent bony areas. If you allow your elbow to hang against your side, you can feel an inner bony prominence against your ribs (medial epicondyle), another one pointing downward (the tip of the elbow, upon which you normally rest your arm on the table), and an outer bony prominence facing away from your body (lateral epicondyle). Many of the muscles originating at least in part from the medial epicondyle act to flex the wrist and fingers (Figure 2). Several of the muscles attached to the lateral epicondyle extend the wrist and fingers (Figure 3). The ulnar nerve, an important nerve serving the forearm and hand in movement and sensation, runs just behind the medial epicondyle (Figure 1). This area is sometimes referred to as the "crazy bone".

Injuries

The following is a discussion of the types of elbow injuries which may occur in various sports.

Throwing Sports

Sports requiring the overhand throwing motion,

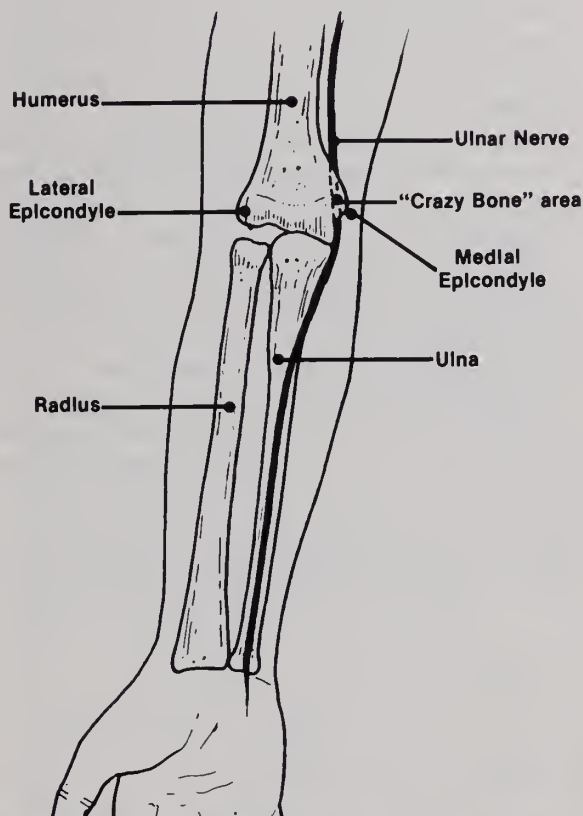


Figure 1



†Reprinted from *Sideline View*, December, 1980. By permission of *Sideline View*, the Institute for Athletic Medicine, and the author.

*Orthopaedic Surgeon and Associate Director of the Institute for Athletic Medicine, Tournament Physician for the Minnesota State High School League, and Team Orthopaedist, Department of Women's Intercollegiate Athletics, University of Minnesota.

such as the baseball pitch and overhand tennis serve, may lead to specific elbow problems. The overhand motion creates stresses over both the medial and lateral aspects of the elbow joint. During the acceleration or forward motion of the throwing act, a stress is placed over the medial, or leading, area of the elbow joint, while a compressive type of stress is placed over the lateral (trailing) aspect of the elbow. These stresses produce injuries found in child and adolescent throwers, adult pitchers, javelin throwers, and tennis players.

Injuries to the medial aspect of the elbow are usually the result of stretching or a tensile form of stress. These include complete separation of the attachment of muscle to bone on the inner side. In addition, formation of bony growths, or injuries to muscle or tendon on the medial side¹ may occur. Medial or inner-sided elbow pain is probably the most common form of discomfort in the overhand thrower.

Compressive forces over the lateral aspect of the throwing elbow occur between the head of the radius and the humerus². These compressive forces may lead to an abnormal increase in bony growth over the end of the radius, fragmentation of the cartilage surface of the humerus, and formation of loose cartilage and bony pieces within the elbow joint. While injuries to the

medial side of the elbow are more common, injuries to the lateral side are probably more serious and may lead to permanent loss of motion in the elbow, as well as long term changes, including arthritis.

The ulnar nerve may be injured as a result of throwing. This can lead to numbness and weakness of the throwing hand and forearm.

Pitchers in childhood and adolescent years are susceptible to the above stresses on the elbow when throwing. Little Leaguer's elbow is a condition incurred by Little League pitchers and other overhand throwers. Symptoms and problems occur over both the inner and the outer aspects of the elbow. These result from the stresses of tension on the inner aspect and compression on the outer aspect of the elbow.

Any juvenile thrower with elbow pain should be seen by a physician. Throwing should be curtailed when pain occurs in the elbow area. Permanent restriction of motion and long-term pain may be the results of excessive throwing.

Contact Sports

Elbow injuries in contact sports are usually the result of direct trauma or blows to the elbow region. Dislocation of the elbow is a common injury in such activities. In a dislocation, the two bones of the

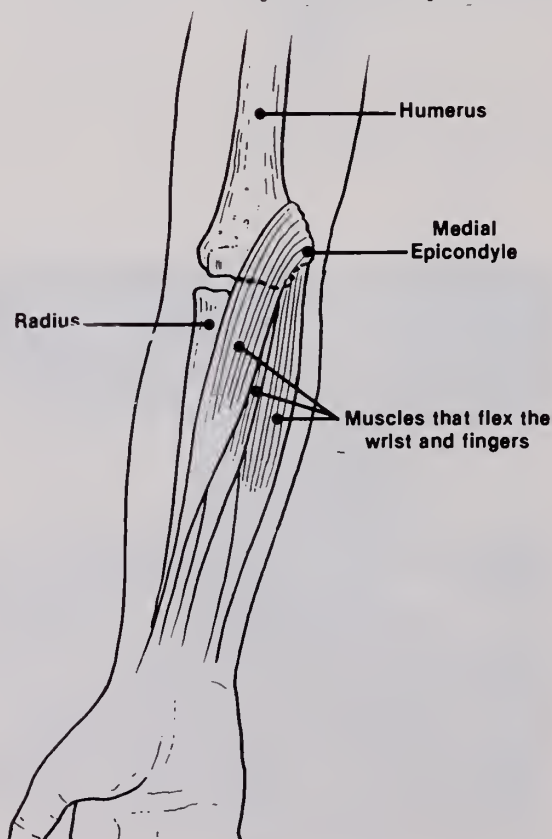


Figure 2

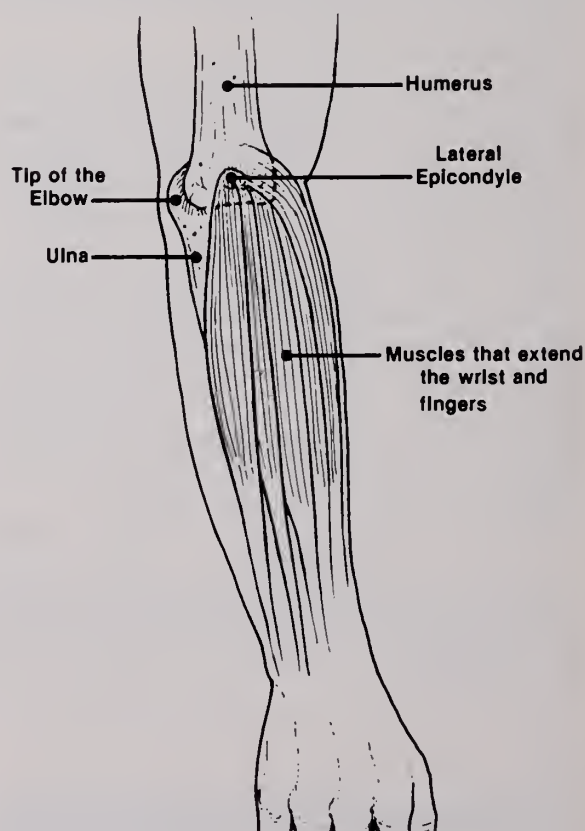


Figure 3

forearm, the radius and ulna, are forced away from the humerus. Ligaments of the elbow are badly stretched or torn. Blood vessels and nerves may be damaged in this process also. The elbow appears deformed and there is considerable pain. This injury should be referred to a physician immediately. Strength will return to the elbow eventually with proper exercise, but full motion may be difficult to obtain unless the athlete is properly supervised during rehabilitation.

Tennis Elbow

Of the various racket sports being played in the United States today, tennis is the most popular. The elbow is the most frequently injured joint in tennis. Tennis elbow is suffered by approximately one-third of those participating in tennis at some time during their playing careers. The site of pain is usually the lateral epicondyle. This pain is often severe.

Tennis elbow is incurred by athletes and nonathletes. While the condition is called tennis elbow, carpenters, dentists, or anyone involved in activities requiring repetitive movements of the forearm or wrist are subject to this problem.

The exact cause for pain over the outer bony prominence of the elbow is unknown. A recent study of tennis players³ indicated that years of play, frequency of tennis play, and level of ability were all greater in the players with elbow pain. This contradicts the assumption that beginners, weekend players, and players with lower ability are more likely to develop tennis elbow.

Tennis elbow can be a difficult condition to treat. One may, however, be reassured that the usual duration of the symptoms is not more than one year⁴. Strengthening of the forearm muscles that flex and extend the wrist and rotate the palm up or down may help prevent the onset of tennis elbow. However, even strong muscles may be unable to withstand the stresses of frequent tennis competition.

Gymnastics

Gymnastics has recently blossomed as a major sport in this country, particularly for women. A recent study⁵ in the Minneapolis-St. Paul area located thirty girls with thirty-two elbow injuries resulting from gymnastics. Thirty of the injuries involved fractures and dislocations of the elbow, ranging from mild, momentary dislocation to severe, complicated fractures with nerve injury. Five girls were not able to return to competition. Two girls sustained chronic or long-term conditions similar to those identified among Little League baseball pitchers.

A wide variety of tricks were being performed in

various events at the time of injury, and no common maneuvers could be isolated. When asked whether they were experienced in the trick being performed at the time of injury, they were evenly divided (experienced 15, not experienced, 13). In spite of the variety of events and tricks being performed, and the variety of injuries, the majority of the injured gymnasts were known to have fallen on an outstretched arm, in an attempt to break the fall.

Gymnasts spend most of their time practicing. While a higher percentage of injuries occur during meets, the majority of injuries occurred in practice. In nearly sixty percent of the injuries, no spotter was present. Among those spotters who were present, several were inexperienced, positioned wrongly, or could not help. More than twice as many injuries occurred on thin (one to two inch) mats or on the bare floor as on thick mats (four inch or more).

Recommendations for prevention of gymnastic injuries include: employment of experienced spotters, use of thicker pads, and education of gymnasts in proper techniques of falling.

Summary

1. The overhand throwing motion creates stress over both the inside and outside of the elbow.
2. Injuries to the inside of the elbow as a result of the throwing motion are caused by stretching stresses while those to the outside result from compressive forces.
3. Injuries to the outside of the elbow in throwing sports are more serious.
4. Any young athlete who feels elbow pain when throwing should curtail his throwing and be seen by a physician.
5. Elbow dislocations are relatively common in contact sports and should be treated by a physician immediately.
6. Tennis elbow pain is at the lateral, or outside bony prominence of the elbow.
7. Tennis elbow pain has been related to a higher level of ability, more years of play, and increased frequency of play.
8. Serious elbow injuries occur when falling on an outstretched arm, such as in gymnastics.
9. Proper spotting, thicker floor padding, and education in falling techniques are recommended injury preventive methods in gymnastics.

Acknowledgement

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³See references page 541.

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"Grow old with me! the best is yet to be — the last of life for which the first was made. . ."

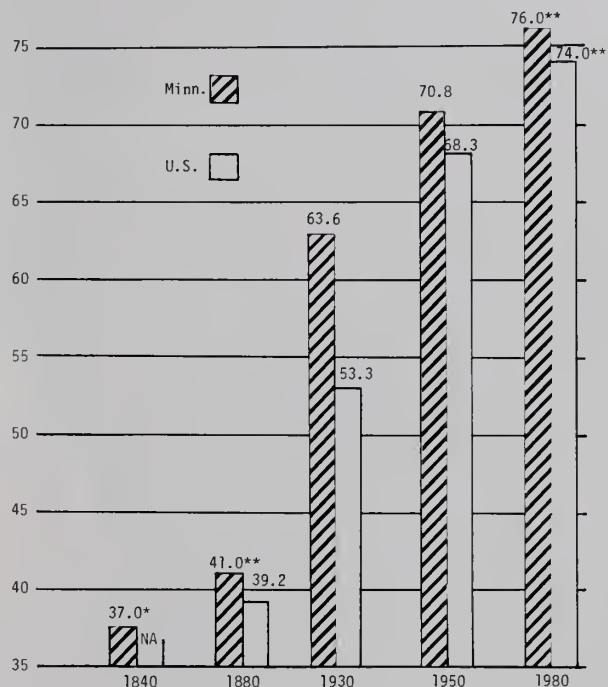
FOR AS LONG as its thoughts have been recorded, probably longer still, the human race has vigorously attempted to delay death and pursue a lengthy productive life. Recorded history in Minnesota is of relatively recent origin, therefore little is known of the indigenous population or its life span prior to 1840. In 1840, a physician in the fledgling territory of Minnesota noted from his experience that half of the white population was dead upon reaching 37 years of age. This situation has been dramatically altered. Today three fourths of the population of the state reaches the age of 67 before death and the average life expectancy² of any baby born in Minnesota is 75 years. This represents a gain in life expectancy of 38 years since 1841.

Based on available statistics, the population³ of Minnesota appears to have always lived *longer* than the average citizen in the United States (Figure). The greatest difference emerged during the era of the Great Depression (1930); this difference has since narrowed considerably.

The greatest gain in life expectancy occurred during the interval between 1880 and 1930 . . . a span of time during which enormous advances were made in disease prevention and control. Since 1930 the increase is more gradual with the smallest gain occurring in the interval between 1950 and 1980.

The average lifetime of females in both the United States and Minnesota has continued to *widen* over that

of males since measurement on the basis of sex began in the United States (Table 1). A female infant across the United States can now expect to outlive a male infant by 7.7 years, on average, as compared with 2.9



*Based on observation.

**Estimates.

Figure — Life expectancy at birth, 1840-1980, Minnesota and the United States.

TABLE 1.

Excess in Years of Female Average Lifetime Over Male, U.S. and Minnesota, 1900-1978.

Period	Minn. Total Years	U.S. Total Years (White only)	Years of Difference
1978 +	6.5*	7.7*	1.2
1969-1971	7.4	7.6	.2
1959-1961	6.4	6.6	.2
1949-1951	5.2	5.7	.5
1939-1941	3.8	4.5	.7
1929-1931	3.3	3.6	.3
1919-1921	2.0	2.2	.2
1909-1911	NA	3.4	—
1900-1902	NA	2.9	—

*Estimated.

years in 1900. The gap for Minnesota has a different complexion: until 1970 a female infant could, depending on the decade in which she was born, outlive a male by as much as 7.4 years. Since 1970 male infants have apparently *narrowed* the gap by almost one year. Overall, the gap in life expectancy between the sexes in Minnesota was never as great as for the United States.

Minnesota life expectancy can also be compared with other countries, particularly those who provided the great numbers of early settlers during the interval between 1840 and 1920. When this comparison is made (see Table 2) Minnesota has a *longer* life expectancy for both men and women, except for Sweden and Norway which match the Minnesota male life expectancy. In every country, life expectancy was greater for women than men. Finland had the greatest difference followed by Minnesota.

continuum from 30 years of age to death.

Table 3 below compares the difference through time in years of expected life for Minnesota citizens at birth and upon reaching age 30. The difference in expectation of life between the birth event and upon reaching age 30 is markedly *small* for both males and females in 1978, 1.7 and 1.0 years respectively, but was much *greater* in 1930, 7.4 and 6.2 years respectively.

Clearly, mortality rates for those under 30 have decreased over time, thus the 30 year old of today is exposed to more favorable mortality rates throughout his lifetime than those prevailing at his birth in 1950. However, for someone born in 1978, further reductions in infant mortality or mortality between the ages of one and thirty will result in only modest increases in expectation of life. Thus, further significant increases in life expectancy will have to result from *risk factor*

TABLE 2.
Life Expectancy,
Minnesota and the Scandinavian Countries

	Male Years Remaining At Birth	Female Years Remaining At Birth	Years of Difference
Minnesota 1978	72	79	7
Denmark 1976	71	77	6
Finland 1974	66	76	10
Norway 1976	72	78	6
Sweden 1976	72	78	6

A related issue remains . . . what effect has declining mortality rates among ages under 30 had on expectation of life? During the first two decades of the twentieth century pronounced reductions in mortality occurred, particularly among the very young. In more recent decades death statistics suggest that the age range in which substantial improvements in life expectancy are possible has been narrowing. At the moment this range appears to primarily span a

behavior change. Such change must include reduced smoking rates, reduced prevalence of hypertension, reduction in ingestion of fatty foods, reduction in chemical substance abuse, and reduction in exposure to all forms of hazards which contribute to the accident rate. Such developments could reverse the trend prevailing throughout this century which resulted in actual increases in death rates to adults aged 50 or more.

References will be found on page 568.

TABLE 3.
Expectation of Life, Minnesota
White Adults Aged 30 Versus Minnesota
White Infants, 1930-1978

	At Birth		At Age 30*		At Age 30*		Total Expected Life	
	Male	Female	Male	Female	Male	Female	Male	Female
1930 †	62.0	65.2	39.4	41.4	69.4	71.4	7.4	6.2
1940	66.0	69.7	41.1	43.7	71.1	73.7	5.1	4.0
1950	68.2	73.4	42.0	46.0	72.0	76.0	3.8	2.6
1960	68.9	75.3	42.3	47.6	72.3	77.6	3.4	2.3
1970	69.5	76.9	42.6	48.9	72.6	78.9	3.1	2.0
1978	72.1	78.6	43.8	49.6	73.8	79.6	1.7	1.0
Difference, 1930-1978	10.1	13.4	4.4	8.2				

*Average years of life remaining once one has lived thirty years.

†Total average years of life expected by those who reach the age of 30.

‡Earliest year for which sex-specific life expectancy data is available for Minnesota.

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The Physician's Sleep Glossary

Some common sleep laboratory terms

poly•som•no•graph. An instrument which simultaneously records by electrodes physiological variables during sleep—for example, brain activity (EEG), eye movements (EOG), muscle tone (EMG) and other electrophysiological variables. These readings indicate precisely when patients fall asleep, how many wake periods they experience, the quality of sleep and the duration of sleep.

sleep la•ten•cy. The period of time measured from "lights out," or bedtime, to the commencement or onset of sleep.

wake time af•ter sleep on•set. Intervals of time spent awake between onset of sleep and the end of the sleep period. The polysomnograph registers the length and frequency of the intervals.

to•tal sleep time. The amount of time actually spent in sleeping. This is estimated by subtracting wake times from the period encompassed by the onset and the termination of sleep.¹

REM/NREM. 1. REM, or rapid eye movement, sleep is "active"—characterized by increased metabolic rates, elevated temperature and arousal-type EEG patterns. 2. NREM, or non-rapid eye movement, sleep represents "quiet" sleep stages. There are four distinct stages of NREM sleep.²

re•bound in•som•nia. A statistically significant worsening of sleep compared to baseline on the nights immediately following discontinuation of sleep medication.³

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Please see summary of product information on following page.



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Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, light-headedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GI complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

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Disability Documentation*

JOHN M. BURNS, M.D.†

"It would be nice to believe that most of us in the medical field . . . are symbols of honor and integrity to our patients. Prolonged musing on that subject led me to question whether that is true and, from there, to consider the role that monetary considerations play in the practice of medical ethics today.

"Physicians are healers, menders of torn or disordered bodies. However, in the course of their practices, they are not often asked to mend a tear in a patient's moral fibre; rather, they are often asked to extend that tear, to rip further when their inclination and training are to mend."

A 'Truth in Mending' Act
E. Alexander, Jr., M.D.
JAMA 243: 1239-1240

Personal illness and disability wage replacement benefits, incidental "sick day" absence and worker's compensation costs account for a significant amount of the health care costs currently paid for by industry. And business pays 32% of the nation's health care costs, second only to government.

"Sick day" allowance obtained through the collective bargaining process is frequently considered an earned benefit; the assurance of 100% fee collection by declaration of an injury or illness to be work related, and encouragement to seek disability payment by labor, management, and even the government (the Social Security administration runs public service announcements instructing persons who think they are eligible for disability payments to call a toll-free number) all contribute to an expanding national health care expenditure that desperately needs trimming, if not radical surgery.

Patients who are ill and financially strapped and who then see fraud and corruption, at least as presented by the media, to be pervasive throughout society, understandably may find it easier to "fudge" on the veracity of a medical history, or to accept disability benefits while earning on the side, or to not get well enough to return to work.

Physicians consciously or not may well be involved in the trend toward fraud in the matter of medical payments. Any time we order an unnecessary diagnostic test because we know the patient's insurance will pay for it, we cross the line into the fudging area. The "system" supports the procedure-orientated practice of medicine in the first place, patients are impressed by the technology if not the masochism of the multi-procedure "complete physical" and rarely, if ever, demonstrate an appreciation of the skills of a good clinician ("Gee, Doc, you sure do take a good history!")

*President's Page, Bulletin, Ramsey County Medical Society, June 1982. By Permission

†President, Ramsey County Medical Society.

Everytime we allow the patient to know or infer that we would not order a test if he had to pay for it himself, we not only cross that line but imply that we might be amenable to crossing it in the areas of disability and liability, as well.

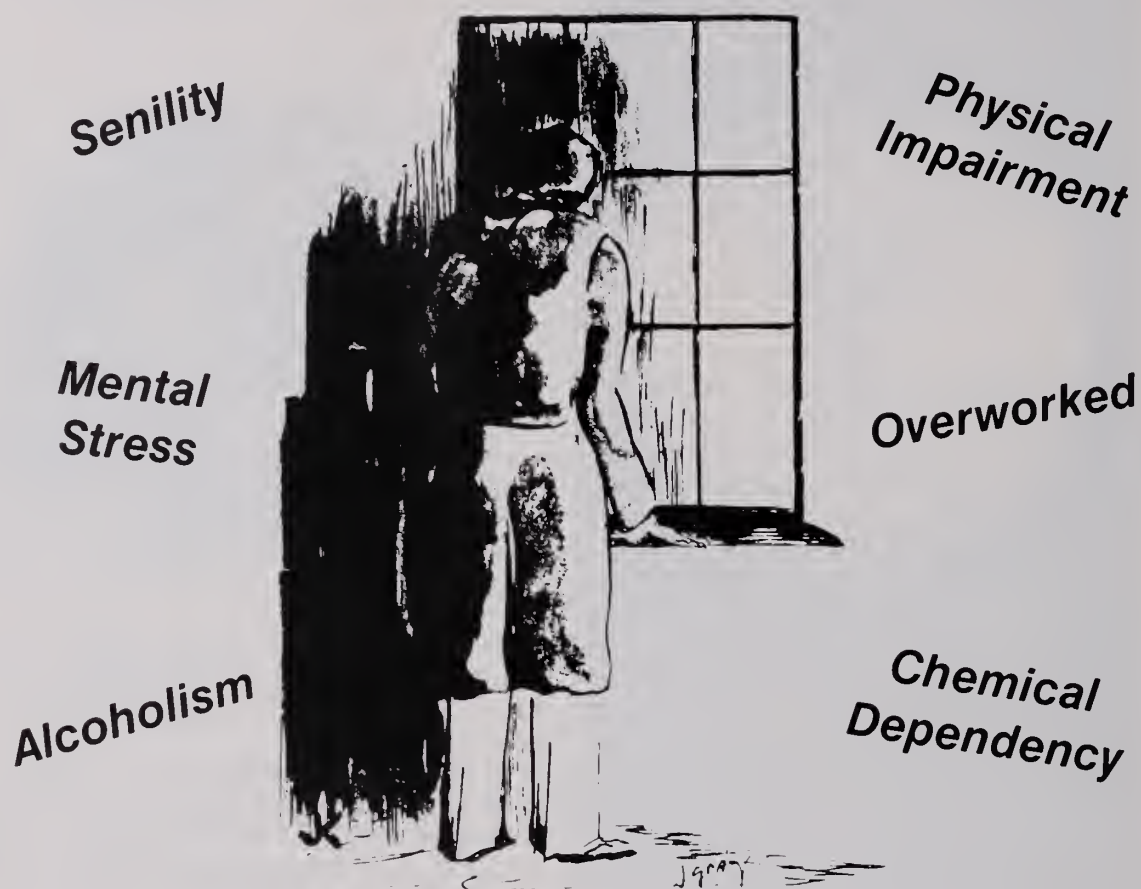
An erosion of the values of integrity and truthfulness that leads to loss of objectivity and proper documentation leads to erosion on other levels. If the trend toward acceptance of defrauding big business and the government is to be reversed, perhaps it is we the physicians who can most effectively start that reversal.

As suggested by Alexander, just as there is a "truth in lending" act, we physicians should have a "truth in mending" act. This requires of us that we take the time necessary to document the veracity of a medical history and that we fully inform ourselves of the nature of our patient's employment in determining the ability to return to work. It is our responsibility to document disability and to make it clear where we stand. This most certainly would help our patients decide where they should stand. Perhaps if we know of colleagues who practice deception in those matters of disability, we should consider that a topic for peer review.

The first maxim of medicine is stated to be, "First of all, do no harm". Can we truly believe if we have helped a patient overcharge an insurance company or government agency or have assisted a patient to abuse his company's benefits, that we have not corrupted — that we have done no harm?

A Ramsey County resolution regarding disability documentation was introduced at the May MMA meeting. The outcome of that discussion and the position our Society takes in the matter of disability documentation will be interesting in the context of this discussion. Regardless, I would strongly recommend Dr. Alexander's commentary for your serious consideration.

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Question! Question!

Notes on Parliamentary Procedure

John V. Thomas, M.D.*

THE SCENE IS one familiar to each of us: a committee or larger organizational assembly is in slow progress. A motion, properly seconded, is being discussed, and at length by certain speakers. The chair recognizes each speaker and listens attentively. But several members, having already voiced their opinions, grow impatient and soon there is heard the peremptory challenge, "Question, question!", or the phrase, "I call for the question."

The challenge here is to the chairperson because he or she must know that, contrary to general opinion, the spoken (or shouted) word, "Question" or "I call the question", is not a motion, is not a point of order and does not end the discussion of the main motion. Frequently the word "Question" paralyses the members and the chairperson who believe that "calling for the question" terminates discussion and forces the chair to put the main motion to an immediate vote. This is contrary to "the fundamental right of a deliberative assembly to have questions thoroughly discussed before it is called upon to take action upon them, unless a large majority, at least two-thirds, is prepared to act at once".¹

Facing such a challenge, the chair may wish to explain to the assembly that the word "Question!" merely indicates that the individual is prepared to vote on the motion, and that further discussion is

in order. If the chair hears the word "Question" from several sources, he or she may then ask the assembly if they are ready for the question (ready to vote), at the same time being alert to recognize that individual who desires to add his or her comments to the discussion. If no one rises to be recognized, then the chair should proceed with the vote on the motion. The chair must be firm in this situation, for a vociferous member may intimidate by "calling the question" and thus actually limit the discussion.

If the members of the assembly desire to end discussion, there is a proper motion, known as The Previous Question. The form of this motion is, "I move (or demand or call for) the Previous Question on the motion before us." This motion requires a second and is not debatable. The object of "Calling the Previous Question" is to end discussion and bring the assembly at once to a vote on the pending question. Here once again we see proper parliamentary procedure acting to protect the assembly, because the motion, Previous Question, requires an immediate vote and a two-thirds affirmative vote to succeed. If two-thirds vote is in the affirmative, the chair then proceeds, without further discussion, to bring the main motion to a vote. If the Previous Question fails to achieve its two-thirds majority then the chair announces that discussion of the main motion will continue.

*Duluth, Minnesota

References

1. Roberts Rules of Order Revised, 75th Ed, 1951, from the introduction, page 16.

Fracture Conference

Biomechanical Factors in Fracture Treatment

JAMES A. RAND, M.D.*, J. JOSEPH DAVIS, M.D.†, and EDMUND Y.S. CHAO, Ph.D.‡

A knowledge of biomechanics is important in optimizing internal fixation. Mechanical problems may arise after inadequate or inappropriate fracture fixation. Refracture of bone may occur after removal of an internal fixation device. Herein we review some important biomechanical factors in fracture treatment and the problem of refracture of bone after internal fixation.

Case Reports

Case 1

Dr. J. Joseph Davis: A 68-year-old woman presented with the following history. She had had bilateral total hip arthroplasties in 1971 and revision of the right hip in 1973. Subsequently, she fractured her right femur and underwent plate fixation. In 1974, she refractured her right femur and was again treated with plate fixation. In 1978, she refractured the plate and femur and was referred to the Mayo Clinic.

Dr. Stephen A. Baker: The patient had a fracture through the distal plate and femur at the level of a screw hole and loosening of the screw (Figures 1 (A) and (B)). I would recommend revision of the internal fixation.

Dr. Davis: The old plates were removed and a 90° blade plate was inserted (Figure 1 (C)). She was placed in a hip spica and ambulation was begun.

Dr. Baker: Internal fixation appeared satisfactory at the level of the fracture, but only a short segment of femur remained uncovered between the proximal and distal plates. This might act as an area of stress concentration.

Dr. Davis: Four months later, she sustained a fracture of the right femur at the proximal end of the distal plate. She was placed in traction for 3 weeks to correct some angulation (Figure 1 (D)). A cast brace was then applied. Fourteen months after the fracture, she was ambulatory in a long leg brace. A roentgenogram revealed bony callus in the area of the fracture (Figure 1 (E)).

Frankel and Burstein¹ maintained that refractures occur because of failure in the weakest section of the bone and most often occur in the presence of stress

risers. Normal bone has a smooth, continuous shape without abrupt changes in geometry. A consistent elastic modulus exists throughout normal bone; therefore, stress flows uniformly through the bone. A stress riser may be defined as a discontinuity in the geometry or material properties of bone that prevents the smooth flow of stress within the bone.¹ A stress riser increases local stress and shifts forces that normal bone can withstand without fracturing into the failure range. Stress risers include screws, screw holes, fracture callus, bone cysts, woven bone, internal fixation devices, and methyl methacrylate present in a continuous long bone.

Dr. James A. Rand: This first case shows the effects of a screw hole and internal fixation devices acting as stress risers.

Dr. Bernard F. Morrey: On the basis of Wolff's law, the bone quality changes because of the altered stress condition. Such a change usually takes considerable time, and it may depend on the size of the defect. If the defect attains a certain magnitude, the strength of the bone at the site of the defect is less than the strength of the bone around it. The material properties of the substance at that site are variable, but the stress-riser effect simply magnifies the given force in a localized area so that a greater stress is imposed on the material surrounding the bone defect rather than on the rest of the bone.

Case 2

Dr. Davis: A 16-year-old boy was in a motor vehicle accident and presented with a painful, swollen right forearm. His neurovascular status was normal.

Dr. John E. Balthrop: Roentgenograms showed a short oblique fracture of the right radial midshaft (Figures 2 (A) and (B)) and a distal radioulnar joint dislocation (a Galeazzi fracture). I would recommend plate fixation of the radial fracture.

Dr. Davis: The patient was treated with plate fixation of the radius, pin fixation of the distal radioulnar joint, and a long arm cast for six weeks. Nineteen months after the injury, the fracture was thought to be healed and the plate was removed (Figures 2 (C) and (D)).

Dr. Rand: What postoperative treatment is recommended?

Dr. Balthrop: I would advise use of a short arm cast for 6 weeks and avoidance of any activity that would impose stress on the forearm.

Dr. Davis: One month later, while lifting 175 lb, the

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Fracture Conference, May 7, 1980.

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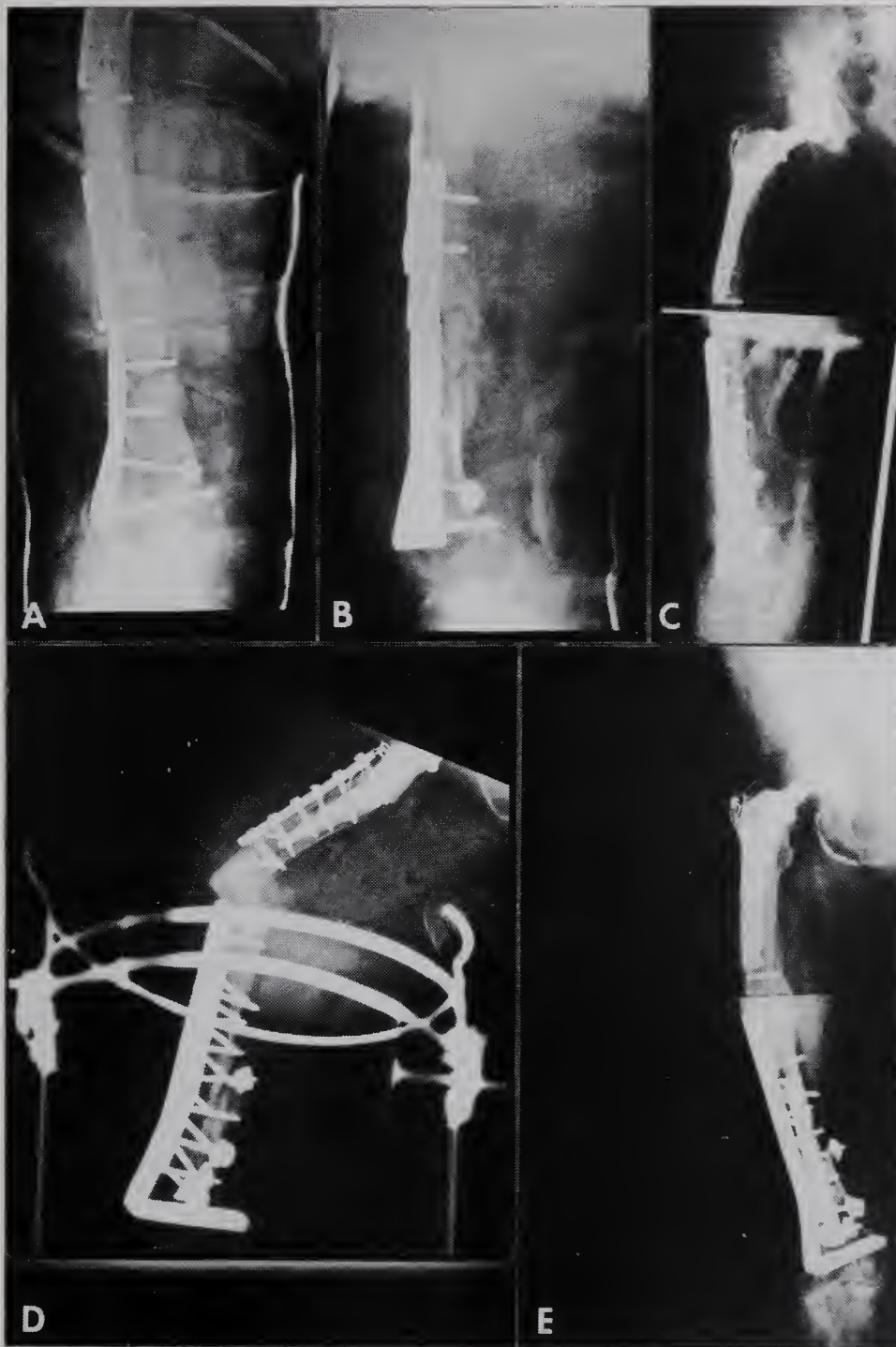


Fig. 1 — (Case 1). Anteroposterior (A) and lateral (B) views, showing fracture through plate and femur at level of screw hole. C, Anteroposterior view of femur after revision of internal fixation, showing plate covering previous fracture site but leaving area of middiaphysis uncovered by internal fixation. D, Fracture of midshaft of femur through area that was not covered by internal fixation devices. (E) Some bony callus is evident across area of fracture through midfemur; however, fracture line is still visible.

patient experienced pain in his right forearm.

Dr. Balthrop: He had sustained a stress fracture of the radius through a screw hole (Figures 2 (E) and (F)). The position of the arm appeared satisfactory; I would apply a long arm cast.

Dr. Davis: He was treated in a cast for 7 weeks and then a splint for five weeks. At one year, roentgenograms showed union of the fracture (Figures 2 (G) and (H)), and he was allowed full activity.

Dr. Patrick J. Kelly: Do you think that this sequence of events weakens the resolve of any surgeon

to remove plates?

Dr. Mark B. Coventry: In this patient, the bone might have been fractured below the plate because the plate was a stress riser. I do not know which method is better.

Dr. Robert H. Fitzgerald, Jr.: The plate was removed in this patient because it was causing pain. He had a tender bursa over the subcutaneous plate on his forearm. The patient did not comply with the recommended postoperative regimen.

Dr. William P. Cooney III: Two years ago when



Fig. 2 — (Case 2). Anteroposterior (A) and lateral (B) views of right forearm, showing fracture through midshaft of radius and dislocation of distal radioulnar joint. (C) Anteroposterior view of right forearm 1 year later, revealing plate fixation and union of radial fracture. (D) Note union of fracture but prominent screw holes after removal of plate. Anteroposterior (E) and lateral (F) views of refracture through midshaft of radius at level of old screw hole. One year after reinjury, anteroposterior (G) and lateral (H) views of right forearm show union of fracture and some radial shortening.

we reviewed similar problems with plate fixation, we found approximately 10 complications associated with removal of the plates. I would not advocate removing a plate in the upper extremity.

Dr. Richard N. Stauffer: One of the reasons for removal is that the current plates are extremely stiff.

Dr. Franklin H. Sim: When we previously reviewed this subject in the athlete, we found several articles that recommended removal of plates in athletes but retention of plates in older patients.

Dr. Davis: Brooks et al.² analyzed the effect of a screw hole on the amount of energy a bone could absorb before fracturing. They compared 2.8-mm and 3.6-mm holes in paired canine femora and humeri and found a 55% decrease in absorption of energy but no difference between the two sizes of screw holes. Bechtol³ reported that when the diameter of the drill hole is less than 30% of the bone diameter, the decrease in bone strength is not significantly different for holes of different sizes.



Fig. 3 — (Case 3). Anteroposterior (A) and lateral (B) views of left femur, showing comminuted midshaft fracture with a large butterfly fragment. Anteroposterior (C) and lateral (D) views of left femur after insertion of Sampson rod, cerclage wire, and bone graft. (E) Anteroposterior view of left femur, showing early partial union of fracture at 5 months after injury. Anteroposterior (F) view of left femur after reinjury.

Brooks et al.² found that the hole increased local stress by a factor of 1.6. The stress-localizing effect of a screw hole is supported by the fact that all fractures passed through the hole and the hole did not affect the predicted 45° angle of fracture, which is seen when torsional forces are involved.

Burstein et al.⁴ found that the recovery rate of maximal torque at 4, 8, and 12 weeks was equal for freshly drilled screw holes, for sites where a screw had been removed after being in place for 90 days, and for sites where a screw had been removed and the hole had been redrilled with a 3.6-mm drill. They found that woven bone filled the screw holes at 4 weeks and eliminated the stress-riser effect. Although they stated that the stress-riser effect was eliminated at four and eight weeks, six of 38 torsional fracture lines passed through the screw hole at 12 weeks. The time required for remodeling of bone in humans may exceed that in experimental animals.

Dr. Rand: We would like to review the effects of a rigid plate and some of the literature regarding plate removal and subsequent refracture of bone.

Dr. Davis: Almost all investigators report acceleration of bone turnover and remodeling under a rigid plate. They all note increased bone porosity, in part due to the mechanical unloading of the bone by the plate.

Uthoff and Dubuc⁵ found osteopenia of the cortex beneath the plate and also reduction in shaft caliber and persistence of woven bone at the fracture site. Tonino et al.⁶ described a 30% decrease in the mechanical

strength and a 17% decrease in mineral content. Paavolainen et al.⁷ reported a 50% decrease in cortical thickness caused by intracortical resorption, a 15% decrease in calcium content, a 53% decrease in maximal torque, and a 26% decrease in resistance to angular deformation. Akesson et al.⁸ stated that the mechanical properties of the bone such as ultimate bending strength and modulus of elasticity remain unchanged, whereas the structural properties such as maximal bending load and absorption of energy are altered.

Several authors have investigated various compositions of the plates. Perren et al.⁹ noted a 70% reduction in bone stress adjacent to a steel plate and a 60% reduction adjacent to a titanium plate. Double plates notably reduce bone stress. This effect is lessened by use of a graphite-fiber plate.¹⁰

After plate removal, the reported refracture rate is from 0.01 to 6.06% in the femur and from 1 to 11% in the tibia.^{11,12}

For an intramedullary nail, Convent¹³ stated that the risk of refracture over 10 years is 20% that of a plate-fixed fracture. Böhler¹⁴ recommended waiting at least 1 year before removal of the nail, to minimize the risk of refracture. Huys et al.¹⁵ found stress protection of the bone by the intramedullary nail.

Therefore, the following policies about removal of plates are recommended. The AO* group stated that implants should be removed from the lower extremities between 1 and 2 years after insertion.¹⁶ Convent¹³ removes implants from all young patients between 1 and 2 years after insertion and recommends protected use for 6 to 8 weeks or longer. He also stated that

*AO = Arbeitsgemeinschaft für Osteosynthesefragen.

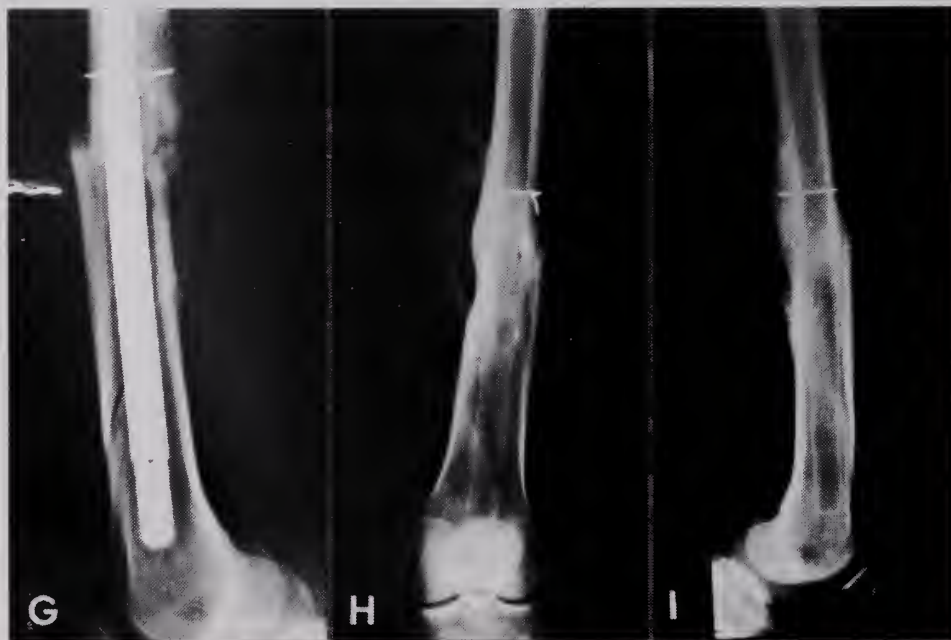


Fig. 3 (Case 3). (G) Lateral view of left femur after reinjury, showing spiral fracture about intermedullary rod and partial union of previous femoral fracture. Anteroposterior (H) and lateral (I) views of left femur after removal of rod, revealing union of both fractures.

refractures always occurred at the site of stress risers. Huys et al.¹⁵ remove implants from symptomatic athletes and children and recommend protected use after removal.

Dr. Morrey: I remove implants in athletes and younger patients but not in older patients. I recommend use of a splint for six to eight weeks after removal.

Dr. Kelly: The only device that I routinely remove is the intramedullary rod.

Dr. Robert H. Cofield: I do not remove plates in the forearm or tibia. I would remove a plate in a younger patient or if it was symptomatic.

Dr. Richard S. Bryan: I would retain any plate in the upper extremities. In the lower extremities, I would remove intramedullary rods but not plates.

Dr. Coventry: I routinely remove intramedullary rods. I remove plates in children but usually not in other patients.

Dr. Cooney: I would retain plates except in weight-bearing areas, such as the tibia or femur.

Dr. Rand: Have any fractures, except those through the screw hole, been detected after plate removal?

Dr. Coventry: Yes. We had verified by tomography that the fracture had healed and the bone had reunited. A new fracture occurred through the old fracture site.

Dr. Fitzgerald: Most members of the staff remove intramedullary rods. Except for Doctor Coventry, everyone said he would remove them to avert potential problems. Have fractures distal to an intramedullary rod been noted?

Case 3

Dr. Davis: A 23-year-old man was in a motor vehicle accident and sustained a comminuted fracture of the midshaft of the left femur with a large butterfly fragment (Figures 3 (A) and (B)). After 5 days, he underwent insertion of a Sampson rod, cerclage wire, and bone graft (Figures 3 (C) and (D)).

Dr. Rand: Allen et al.¹⁷ have advocated use of the Sampson rod because of the rigidity of fixation.

Dr. Davis: The patient progressed to normal ambulation within five months (Figure 3 (E)). Eleven months postoperatively, he sustained a spiral fracture of the distal femur around the intramedullary nail (Figures 3 (F) and (G)). He was placed in a cast brace for two months.

Dr. Rand: In this case, did the rigidity of fixation lead to stress protection of the bone, did the rigid rod act as a stress riser, or would the fracture have occurred anyway?

Dr. Coventry: With or without internal fixation, a bone under sufficient stress will fracture.

Dr. Bryan: The original fracture never united completely. The spiral fracture began at the site of the original fracture.

Dr. Davis: At 16 months after refracture, the fracture was clinically and radiographically united and the rod was removed (Figures 3 (H) and (I)).

Dr. Fitzgerald: I have inserted Zickel nails or intramedullary rods in several young patients. Although the rods are easy to remove, removal of a Zickel nail necessitates another major surgical procedure. I am unaware of any report of a definite risk for fracture below the intramedullary device.

Dr. Stauffer: The rationale for rod removal is exemplified in this last case. The bone will not regain its original strength as long as the nail is in place, particularly with a rigid rod such as the Sampson type.

Dr. Rand: We have raised many questions about removal of internal fixation devices. The answers remain to be explored further.

Acknowledgment

The authors thank Franklin H. Sim, M.D., Robert H. Fitzgerald, Jr., M.D., and Miguel E. Cabanela, M.D., for use of their patient material.

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Child Abuse and Neglect

What Minnesota Physicians Want to Know

CATHERINE N. HOAGBERG, B. SC.;* ROBERT W. TEN BENDEL, M.D., M.P.H.† and
DOUGLAS A. FENDERSON, Ph.D.‡

Reasons for physician reluctance to report suspected cases of child abuse and neglect are cited. Results of a recent survey indicating strong interest in practical subjects regarding child abuse such as methods and procedures, optimal management and prevention, sources of information and assistance are given.

PHYSICIANS WHO provide care for families and children have key roles to play in society's effort to deal effectively with the problem of child abuse and neglect. In fact, Minnesota law requires that physicians who have "knowledge to believe" that a child is being neglected, or physically or sexually abused, shall report these situations to local police or welfare officials. However, professional compliance with the spirit and intent of this law is often uneven. In 1979, for example, only 15 percent of all reported cases of child abuse in Minnesota were initiated by medical personnel.¹ As a result, some abused children may not be appropriately protected, and their families may be denied needed help.

The reasons given for professional resistance to reporting include: the risk of alienating and stigmatizing the family; the physician's feeling that he can provide the needed services without a "report"; lack of trust and confidence in local officials and agencies; uncertainty about how to proceed; the incompatibility of this publicly-imposed "police" function with the physician's role as a professional; and the personal and legal risks to which physicians expose themselves by complying.

Physicians want to deal positively with cases of child abuse. Sometimes they prefer to manage such problems within the privacy of their own practices. Others, however, may be uncertain about how to

report, refer, and optimally manage these cases, and they are not always aware of resources that may be available to assist them.

To promote greater physician awareness and participation in the problem of child abuse and neglect, the University of Minnesota's Office of Continuing Medical Education, in collaboration with the School of Public Health's Program of Maternal and Child Health, the Departments of Family Practice and Community Health and Pediatrics, and the Section of Maternal and Child Health of the Minnesota Department of Health, is helping develop and present an educational program for Minnesota's physicians. The program will provide basic knowledge about child abuse and neglect, and continuing access to educational resources, consultation, and technical assistance related to child abuse and neglect.

One of the first tasks of this collaborative effort was to identify and rank major areas of informational need about child abuse and neglect as perceived by physicians themselves through the medium of an objective survey instrument. Subsequent educational programs would then be structured around the results of this inquiry. The process began with a wide-ranging discussion by an advisory group[#] about possible educational gaps that exist for Minnesota physicians. Topics were identified by using the "Nominal Group Process" technique, and were then refined and combined into a 17-item structured rating instrument. The questionnaire asked respondents to rate their degree of interest in each listed topic area on a 5-point scale. Respondents were also given the opportunity to list "other aspects of child abuse and neglect about which they would like to have additional information."

The questionnaire was completed by 110 physicians attending two recent continuing medical education courses sponsored by the University of Minnesota for

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[#]The advisory group includes representatives of the Minnesota Chapter, American Academy of Pediatrics; the Minnesota Academy of Family Physicians; the Minnesota Medical Association; the Department of Public Health, Section of Maternal and Child Health; the Department of Public Welfare; and the University of Minnesota School of Public Health, Maternal and Child Health Program; the University of Minnesota Medical School Departments of Pediatrics, Psychiatry, and Family Practice and Community Health. All members are involved in and knowledgeable about child abuse. The group includes both urban and rural members of child abuse and neglect teams.

primary physicians. Most of the respondents live and practice in Minnesota. Forty percent reside in communities of 50,000 or more, while about a third live in towns with less than 10,000 people. As a group, however, our respondents were not randomly selected, and may not be typical of Minnesota's primary physicians in general.

Analysis of the survey results indicates that the responding group has a relatively high level of interest in all of the topics listed. No topic received an average rank of less than 2.57 on a scale of 1 ("very interested") to 5 ("little or no interest"). Another indication of the group's high interest level is the fact that 15 percent of the respondents volunteered additional topics in which they are interested.

The top 10 topics in order of respondent preference, and the average rankings (in parentheses) are as follows:

1. Optimal management of child abuse and neglect cases, including reporting, supporting, and maintaining rapport with victim and families. (1.49)
2. Prevention of child abuse and neglect. (1.50)
3. Recommended interviewing techniques with victims and parents. (1.51)
4. Available treatment programs for child abuse and neglect and their effectiveness. (1.66)
5. Understanding the dynamics of child abuse and neglect. (1.67)
6. The long-term effects (outcomes) of child abuse and neglect on victims and families. (1.67)
7. How cases flow from beginning to end (from reporting to investigation to legal intervention to treatment, etc.). (1.69)
8. The relationships between other types of intrafamily violence and child abuse and neglect. (1.72)
9. Documenting "knowledge to believe" that child abuse and neglect have occurred in the absence of conclusive evidence. (1.74)
10. The physician's legal responsibilities and liabilities for reporting/not reporting instances of child abuse and neglect. (1.75)

As these choices suggest, our respondents had a clear preference for topics which they perceive to be of practical use in the clinical management of child abuse and neglect. As one might expect, there was less interest in topics that have to do with academic considerations (e.g., "Statistics on the nature and extent of child abuse and neglect"), or with the legally-established apparatus for dealing with child abuse (e.g., "the role of the police/sheriff in cases of

child abuse and neglect"). Most of these preferences were reinforced in the evaluations we received from registrants at a University-sponsored course on "Psychiatry in Primary Care: How to Handle Child Abuse," in March, 1981.

Results from this needs assessment process have been analyzed and reviewed by the project staff and the advisory group, and form the basis for a comprehensive program of information, education, and consultation that is being developed and implemented. The major elements of this program are:

- Production of a video tape, "Child Abuse and Neglect: The Physician as Reporter" and accompanying manual, "Physician's Handbook for Reporting Child Abuse and Neglect" under the direction of Dr. Robert ten Bensel. These materials are now available without charge from the office of Continuing Medical Education and are suitable for group or independent study.
- The design and presentation of one or more "in depth" clinical training programs for physicians who have a special interest and willingness to serve as consultants.
- The development and presentation of a statewide conference for physicians on child abuse and neglect.
- The inclusion of curricular units on child abuse and neglect in the annual Family Practice Review course, and in the annual meeting program of the Minnesota Medical Association and the Minnesota Academy of Family Practice.
- The presentation in the Winter and Spring Quarters 1983, of a 10-part television independent study course, under the auspices of the University of Minnesota's Department of Continuing Education and Extension. The course, which offers physicians continuing medical education credits, will be presented over educational television stations in the Twin Cities, Duluth, and Appleton-Morris.
- At the request of interested physicians, the presentation of a continuing medical education course on child abuse and neglect in collaboration with one or more of the 30 accredited CME program institutions throughout Minnesota.

In addition, physicians wishing additional information on this program, or to arrange for speakers on the video tape and manual on the topic of child abuse and neglect, are invited to contact the Office of Continuing Medical Education at the University.

A law enacted by the 1981 Minnesota Legislature allows Minnesota counties to establish "multidisciplinary child protection teams" as a means for dealing more effectively with the problem of child abuse and

neglect.² Many Minnesota physicians will be asked to serve as members of these teams. Others will encounter instances of child abuse and neglect in their clinical practice. The purpose of the collaborative

program described here is to respond positively to the expressed educational and consultative needs of Minnesota doctors, and to assist them in dealing more effectively with this troublesome problem.

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- children. JAMA, 240:1145, 1978.
2. Minnesota Statutes, Chapter 626.558, Sections 1 and 2.

How Long Can We Expect to Live — Gunderson (page 550).

1. Robert Browning in "Rabbi Ben Ezra".
2. *Life expectancy* is the number of years remaining before half of the population at a given age is dead.

3. No inferences can be made for the ethnic or minority population experience. Unfortunately, prior to 1910 little is known of the disease or death experience of the Asian, Black, American Indian, or Spanish surname populations.

Physicians in the News

Howard L. Horns, M.D., who retired in March after four decades in the practice of medicine, was named this year's recipient of the Charles Bolles Bolles-Rogers Award. This award has been given annually since 1952 by the Hennepin County Medical Society to the physician who through medical research, achievement or leadership is selected by his peers as being outstanding in the profession.

A Stuart Hanson, M.D. was elected in May to the Board of Directors of the American Academy of Medical Directors.

MINNESOTA MEDICINE Winter Covers

The cover editor would like to solicit photographs for next winter's covers concerning the possible vacation places that many persons travel to from this area. Many Minnesotans vacation out of state during the winter months including such areas as the mountains for skiing, the Caribbean, Florida, the desert states, and possibly Mexico. The editor would like to receive scenic photographs of some of these vacation areas in the hopes that MINNESOTA MEDICINE could have a winter series on some of these areas.

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Echoes from Our Past

JACK D. KEY, M.A., M.S.*

The Modern Sword of Damocles

American humorist Samuel Langhorne Clemens of Mark Twain fame once said: "It is my heart-warming and world embracing Christmas hope and aspiration that all of us, the high, the low, the rich and the poor, the admired, the despised, the loved, the hated, the civilized, the savage may eventually be gathered together in a heaven of everlasting rest and peace and bliss — except the inventor of the telephone."¹

Environmental hazards to health, both real and imagined, seem to confront every age. Published in *Lancet* 2, 1882, p. 996 was one individual's concern relating to this subject.

It would be difficult for a malevolent genius to devise any more dangerous apparatus than a long stout wire stretched from house to house across a public thoroughfare. In some unexpected moment, under extraordinary pressure, perhaps a heavy weight of snow, it is not merely possible, but likely, that it will fall to the ground, and in falling must almost inevitably cut in two all it strikes. Nevertheless, this modern sword of Damocles hangs suspended over the head of the Londoner in nearly every street through which he passes from murky morn to drizzly eve. And, strange to say, the threatened Londoner seems in no way disturbed by the jeopardy in which he is placed. If it were otherwise, if the fear of danger dogged his footsteps, he would simply take measures to have the impending peril removed under the Nuisances act. It is useless to remonstrate, because, doubtless, the representative Londoner has an interest in the multiplication of telegraph and telephone wires stretched overhead, and if an "interest" be vested in any nuisance or source of danger it is safe. Meanwhile, for the sake of the provincial folk and foreigners who visit the metropolis, if not of the mass of the population, it would be well to take these wires down before some terrible calamity occurs. Mr. W. H. Smith told a deputation which waited upon him a few days ago that it was vain to hope that anything would be done in the session of Parliament which has just ended. He was right. We should like to supplement this extra-Parliamentary utterance with the remark, that it is perfectly useless to expect that in any session of a legislative assembly, or by any official board, anything will be done so long as public opinion betrays no consciousness of the danger that exists. A spice of peril adds piquancy to life, and the reflection that we may "at any moment" fall victims to some hideous catastrophe is rather exhilarating to the human mind, than calculated to disturb its habitual tranquillity. This being so, it is perhaps a pity that anyone should harbour a desire that the modern sword of Damocles may be speedily removed.

*Librarian, Mayo Clinic, Rochester, Minnesota.

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Minnesota Department of Health

Development of a Feasibility Study for a Statewide Cancer Surveillance System in Minnesota

ALAN BENDER, D.V.M., Ph.D.*

The Minnesota Department of Health (MDH), in accordance with legislation passed in 1981, and with the support of the Minnesota Cancer Council is evaluating the feasibility of a statewide cancer surveillance system. An Interim Technical Advisory Committee assisted MDH in the development of an interim report for the State Legislature that addressed the practical and philosophical guidelines for solving the technical problems of a statewide system. The scientific and public demand for such a system, the interim report, and future directions are presented.

DURING THE PAST decade it appears that Minnesotans have become increasingly aware, and in many instances alarmed, by what has been popularized as a cancer epidemic. The news media are reporting that since 1971 the life-time risk of developing cancer has increased from "one-in-four to one-in-three". A recent Occupational Safety and Health Administration (OSHA) report implies that up to 38% of all cancer can be linked to occupational exposures.¹ It is often said that "environmental factors" are responsible for more than two-thirds of the incident cancer.^{2,3,4,5}

These general statements cannot be accepted without critical evaluation. The Surveillance, Epidemiology and End Results (SEER) program of the National Cancer Institute estimated that for the years 1973-1977, the cumulative risk of developing cancer through age 74 was 30.8 percent.⁶ Based upon the Third National Cancer Survey⁷, the corresponding risk (1969-1971) was 27.8 percent. It is upon these estimates that the reported increase in cancer risk from one-in-four to one-in-three is based. Also, the increase in the cumulative risk of cancer must be partially attributed to non-cancer related phenomena such as increasing lifespan and decreasing mortality from heart disease. The OSHA report, although well publicized, has been severely criticized, and not widely accepted in the scientific community.⁸ The estimates of the impact of "environmental factors" were based on a very broad definition of environment.⁴ This definition included factors such as personal lifestyle (i.e., smoking and alcohol consumption) and diet. Most people do not think of these

factors as part of their "environment", and widespread misunderstanding has resulted.

The fact that these reports have often been misunderstood, misrepresented, or improperly interpreted does not change the fact that Minnesotans have become increasingly sensitive to cancer related issues. The discovery of carcinogens in the water supplies of Duluth (asbestos) and St. Louis Park (polynuclear aromatic hydrocarbons) are examples of events that have promoted this concern.

The Minnesota Department of Health (MDH) frequently receives calls from physicians and concerned citizens about the significance of an observed cluster of cancer cases.⁹ Relatively rare events in small populations are subject to substantial, short-term variations. All such reports must be taken seriously however, because occasional "cancer clusters" such as the hemangiosarcomas associated with vinyl chloride exposure have lead to new information required for prevention of further cases.¹⁰

The first elements of investigating these reports are verification of the report (diagnoses), complete case ascertainment, and comparison of the results and rates to those in a similar population. If these results are both statistically and biologically consistent with a potential public health problem, then further steps are taken.¹¹ Since the first stage of these analyses entail moderate expense and the later steps are extremely costly, considerable judgment is required in the decision to proceed with the investigation.

To efficiently respond to the needs of Minnesotans in a scientifically valid manner and to promote the development of a data base for use in scientific research, MDH has been involved for many years in

*Section Chief, Chronic Disease Epidemiology, Minnesota Department of Health, Member, Minnesota Cancer Council, Minneapolis.

discussions about the need for a centralized, statewide cancer surveillance system. During 1981, the State Legislature enacted a law (Minnesota Session Laws 1981, Chapter 340) requiring a feasibility study of a statewide system. To explore the technical and medical problems associated with a state system and to respond to the legislative mandate, MDH formed the Interim Technical Advisory Committee for the Development of a Statewide Cancer Surveillance System (Committee). The members of this Committee are:

Dr. B.J. Kennedy, Medical Oncologist, University of Minnesota
 Dr. James Krook, Medical Oncologist, The Duluth Clinic
 Dr. Leonard Kurland, Epidemiologist, Mayo Clinic
 Dr. Charles Moertel, Medical Oncologist, Mayo Clinic
 Dr. Charles Murray, Medical Oncologist, St. Louis Park Medical Center
 Dr. Mark Nesbit, Jr., Pediatric Hematologist/Oncologist, University of Minnesota
 Dr. Leonard Schuman, Epidemiologist, University of Minnesota
 Dr. Louis Weiland, Pathologist, Mayo Clinic

Committee deliberations resulted in a set of recommendations for the cancer surveillance system and a more detailed understanding of the problems associated with its development. These recommendations were included in a formal interim report filed in January, 1982 with the State Legislature.¹² The recommendations contained in this report represented personal views of the Committee members and did not necessarily represent a formal position of the members' institutions. The recommendations are summarized below.

1. The cancer surveillance system must be population-based. That is, complete ascertainment of all new cancer diagnoses must be obtained from a population of known size and demographic characteristics.
2. The surveillance system must be based primarily upon diagnoses that have been microscopically confirmed as cancer.
3. The surveillance system must provide for prompt identification of all new cancer diagnoses and rapid computer processing of incoming information.
4. The core data of the surveillance system should contain only the information required for the calculation of rates (for example, by county, age, and sex) and to direct researchers to hospital records for more detailed data. Data requiring patient contact, detailed record abstraction, and data that will be difficult or costly to obtain should not be part of the core surveillance system.
5. The surveillance system must be designed for close collaboration with the research programs of many institutions. It is through surveillance/re-

search collaboration that effective new knowledge for the prevention of cancer will be developed.

6. The design of the surveillance system should be flexible enough to facilitate modifications and extensions that address newly identified needs of health professionals, cancer patients, and researchers.

7. The cancer surveillance system must provide strict confidentiality for cancer patients and their surveillance records. The surveillance system should not maintain records that could be used to identify individual patients directly.

8. Information in existing hospital-based cancer registries should be used whenever possible to maximize the efficiency of operation of the surveillance system. The function of hospital-based registries in collecting clinical information and providing patient follow-up would not be supplanted by a statewide system.

The Committee believes that a surveillance system based upon pathology reports supplemented by additional demographic information would be the operational method of choice. The past president of the Minnesota Society of Clinical Pathologists is a member of the Interim Advisory Committee. Other pathologists have also been involved in preliminary discussions. At this time many pathologists philosophically support this development. Further exploration with the state's pathologists is ongoing to determine the feasibility and design of a pathology-based system.

There have been many attempts at developing state or local cancer surveillance systems/registries. The Connecticut Tumor Registry, for example, has been in operation for more than forty years.¹³ A large amount of knowledge about the operation of such systems already exists. A system that is essentially pathology-based is employed in the Los Angeles area^{14,15} and other information on pathology-based systems is in the literature.^{16,17} Although it is not intended to imitate any of the more than forty such systems in existence, an understanding of their operations is important. The WHO has generally criticized previous attempts to develop central cancer reporting systems for insufficient study and understanding of the subject.¹⁸ Historical mistakes should not be made again and successful elements of operation need to be evaluated for their applicability in Minnesota.

The State Legislature provided no funds for direct support of the system's development. MDH applied through the Minnesota Cancer Council to the Minnesota Division of the American Cancer Society for

money to support the development of the background knowledge required to design a feasibility study. The Minnesota Cancer Council is a non-profit corporation with representation from the American Cancer Society, Minnesota Medical Association, Minnesota Dental Association, Minnesota Nurses Association, Minnesota Pharmaceutical Association, Minnesota Department of Health, Minnesota Tumor Registrars Association, the Mayo Comprehensive Cancer Center, the University of Minnesota Health Sciences Center, and the Minnesota Licensed Practical Nurses Association. The purpose of the Minnesota Cancer Council is to promote the control of cancer in Minnesota. Through the support of the Council, the grant was approved and support funds were provided by the Minnesota Division of the American Cancer Society. MDH is currently conducting the required background research.

In addition to conducting background research,

MDH in conjunction with the Interim Technical Advisory Committee is: developing research support at the University of Minnesota, the Mayo Comprehensive Cancer Center, and elsewhere to be integrated with the surveillance system; identifying and evaluating funding sources for the pilot study and long-term research support of the system; designing a pilot protocol and identifying technical problems requiring solution; and developing statewide communication to insure understanding of the scope and the intent of the proposed system in order to gain feedback on these ideas.

The potential problems although numerous and growing in number as the general philosophy is translated into detail, do not at this time appear insurmountable. It is the consensus of the Interim Committee and the Cancer Council that Minnesota may be a unique environment in which these plans, expectations, and results can be brought to fruition.

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16. Gilchrist KW, Powers DJ: A proposal for reporting of cancer by hospital pathologists. *Human Path* 8:451, 1977.
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Continuing Medical Education Fargo, North Dakota

"Management of New and Old Infectious Problems Seen in Children" will be the topic for the Fargo Clinic's 4th Annual Pediatric Day Seminar, October 16, 1982 at the Fargo Holiday Inn. For details, contact: Medical Education, St. Luke's Hospital, 5th Street North at Mills Avenue, Fargo, ND 58122; (701) 280-5933.

Continuing Medical Education Scientific/Ski Meeting

The Northwestern Medical Association convenes for its 36th Annual Meeting at Sun Valley, ID, from February 7 to 11, 1983. Transplants-implants, general medical subjects, ski-injury prevention, high-altitude physiology and financial planning will be discussed by experts. Approved for 10 CME Category I credits. Registration 3 to 5 p.m. on February 7, Challenger Inn, Sun Valley. Non-members registration \$100. For information, write to Norman Christensen, M.D., 2456 Buhne Street, Eureka, CA 95501 or phone (707) 443-2248.

MMA AUXILIARY FALL WORKSHOP

"SHARING OUR STRENGTHS"

DAY OF INFORMATION AND PARTICIPATION

SEPTEMBER
S M T W T F S
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30

October
1982

NOVEMBER
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10	11 COLUMBUS DAY	12 TRADITIONAL DANCE	13	14	15	16
17	18	19	20	21	22	23
24 31	25	26	27	28	29	30

PLACE: WOMAN'S CLUB OF MINNEAPOLIS

Choice of Workshops:

Public Relations

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Group Dynamics

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An Inexpensive Home Eye Test

BUDD APPLETON, M.D.*

The Minnesota Adult Home Eye Screening was devised in 1981 by members of the Medical Advisory Committee and Staff of the Minnesota Society for the Prevention of Blindness. It was intended for use as an easily administered, inexpensive method for detection of visual defects in the home or similar circumstances. Its format is an eight-panel, accordion-pleated brochure printed on both sides (Figure 1).

There are four major components: a Snellen equivalent chart for use at 10 feet, a pin-hole apparatus, an Amsler grid, and a set of glaucoma "survey" questions (Figures 2, 3, 4, 5). Accompanying these is a set of comprehensive directions (Figures 6, 7, 8).

Recently announced results of the Senile Macular Degeneration Study (SMDS) sponsored by the National Eye Institute of Bethesda, Maryland, as part of its Macular Photocoagulation Study (MPS), have shown that Senile Macular Degeneration (SMD) is definitely amenable to laser photocoagulation therapy in patients meeting certain criteria. This study and previously reported findings indicate that treatment will be effective only if certain irreversible changes have not occurred and that this "golden period" for effectiveness is of only limited duration. It is of great potential value for individuals susceptible to SMD to monitor their vision at home frequently and regularly in order to detect the earliest symptoms of this disease.

The Minnesota Adult Home Eye Screening lends itself admirably to this purpose, because it includes both a pin-hole test and an Amsler grid test both of which are quite useful in detecting early SMD. Additional information about the Minnesota Adult Home Eye Screening and its availability may be obtained from the Society at the address listed below:

Minnesota Society for the Prevention of Blindness
and Preservation of Hearing
1208 Pioneer Building
St. Paul, Minnesota 55101

*Ophthalmologist, St. Paul.

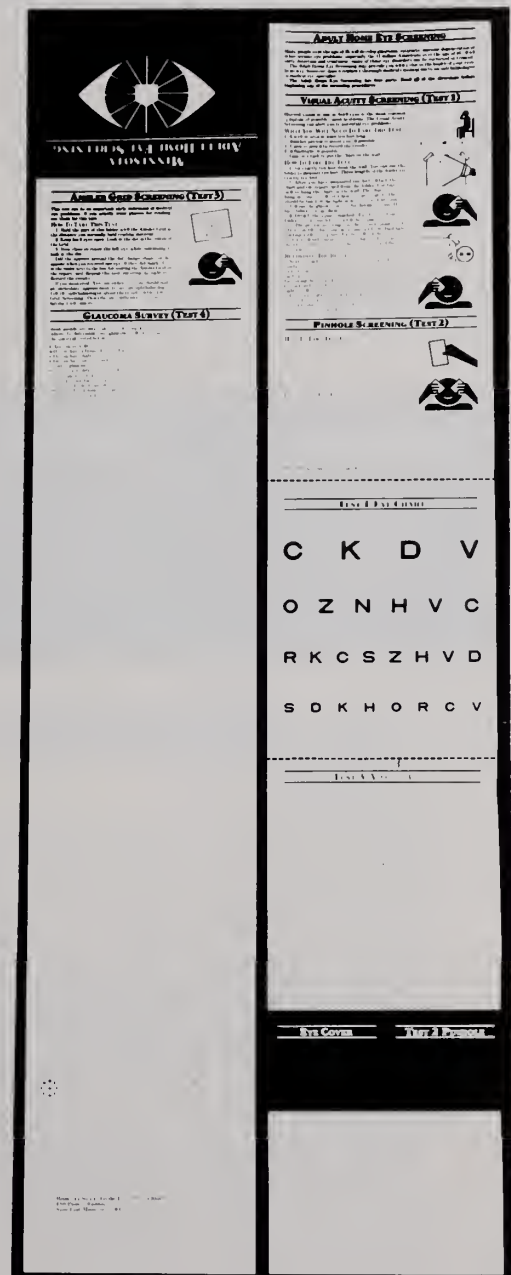


Figure 1

TEST 1 EYE CHART

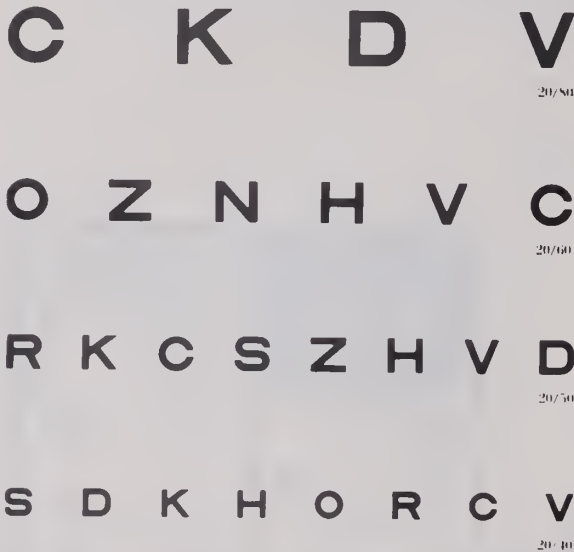


Figure 2

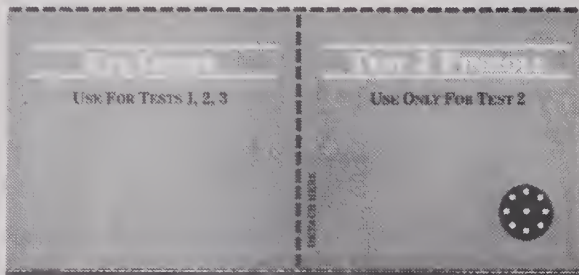


Figure 3

TEST 3 AMSLER GRID

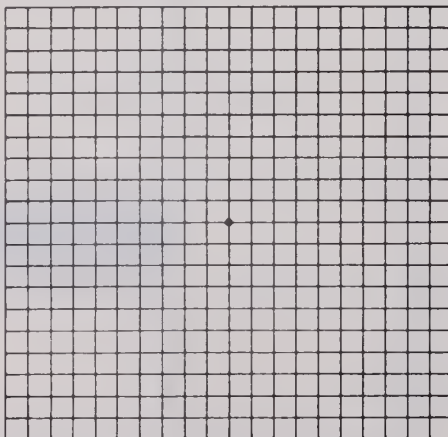


Figure 4

GLAUCOMA SURVEY (TEST 4)

Some people are more likely to develop glaucoma than others. To determine your glaucoma risk factor, answer the questions listed below:

- Are you over 40?
- Do you have a family history of glaucoma?
- Do you have diabetes?
- Do you have an eye condition you have been told may lead to glaucoma?
- Are you a member of the black race?

If you answered "Yes" to any one of these questions and if you have not had a glaucoma test within the past two years, check the Glaucoma Survey line on the report card. You should make an appointment with an ophthalmologist to have a glaucoma test.

You have now completed the Adult Home Eye Screening and have some idea whether you should have your eyes examined by an ophthalmologist. This screening, however, does not replace a medical eye examination. If you are having problems with your eyes or with your vision, you should be examined regardless of how well you performed on this test.

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Figure 5

VISUAL ACUITY SCREENING (TEST 1)

Blurred vision in one or both eyes is the most common symptom of possible vision problems. The Visual Acuity Screening can alert you to potential eye problems.

WHAT YOU WILL NEED TO TAKE THIS TEST:

1. A well-lit area at least ten feet long.
2. Another person to assist you, if possible.
3. A pen or pencil to record the results.
4. A flashlight, if possible.
5. Tape or a tack to put the chart on the wall.

HOW TO TAKE THE TEST

1. Sit exactly ten feet from the wall. You can use this folder to measure ten feet. Three lengths of this folder are exactly ten feet.
2. After you have measured ten feet, detach the eye chart and the report card from this folder. Use tape or a tack to hang the chart on the wall. The chart should be hung at your eye level when you are seated. The test should be taken in daylight or in a very well-lit room.
3. Wear the glasses you use for distance vision. If you have bifocals, wear them.
4. Detach the square marked "Eye Cover" from this folder. Cover your left eye with this square.
5. The person assisting you should now point to the letters on the chart one at a time with the flashlight, starting with the top line of letters. Read the letters out loud. You should continue until you have either read all of the letters correctly or until the letters are too difficult to see clearly.

RECORDING THE RESULTS

Next to each line of letters is a number. Find the number next to the last line you were able to read correctly in its entirety. This is your score. On the report card, beneath the space for your name, there are blanks for scoring the Visual Acuity Screening. Write your score. Go back and read the chart again, this time covering the right eye. Record the results just as you did the first time.

If you were able to read the 20/40 line with each eye, turn to Test 3 on the reverse side, and omit Test 2. If you were not able to read the 20/40 line with one or both eyes, you should now take Test 2.



Figure 6

PINHOLE SCREENING (TEST 2)

HOW TO TAKE THIS TEST

1. Use the same eye chart you used for the first test. Again sit exactly ten feet from the wall.
2. Detach the square labeled "Pinhole" from this folder. Cover your left eye with the Eye Cover square and at the same time look through the pinhole with your right eye.
3. As you did in the first test, read the eye chart. Start at the top. Continue reading until you have read all of the letters correctly or until you can no longer see the letters clearly.

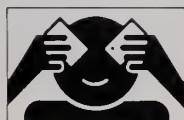
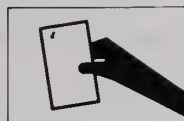
RECORDING THE RESULTS

Find the number next to the last line of letters you were able to read correctly, just as you did in Test 1. Write the number on the report card next to the Pinhole Screening. Now test your left eye using the same procedure. Record the results for the left eye.

WHAT THE PINHOLE SCREENING MEANS

If you were able to read the 20/40 line with each eye you may just need your eyeglass prescription changed. If you don't normally wear glasses, you may need them.

If you could not read to the 20/40 line you should make an appointment with an ophthalmologist. Tell the ophthalmologist about the test and about any difficulties you may be having with your eyes.



AMSLER GRID SCREENING (TEST 3)

If you usually wear glasses for reading, use them for this test.

HOW TO TAKE THIS TEST

1. Hold the part of this folder with the Amsler Grid at the distance you normally hold reading material.
2. Keep both eyes open. Look at the dot in the center of the Grid.

3. Now close or cover the left eye while continuing to look at the dot.

Did the squares around the dot change shapes or disappear when you covered one eye? If they did, mark "Yes" in the blank next to the line for scoring the Amsler Grid on the report card. Repeat this test, covering the right eye. Record the results.

If you answered "Yes" for either eye, you should make an appointment to see an ophthalmologist. Tell the ophthalmologist about the results of the Amsler Grid Screening. Describe any difficulties you may be having with your eyes.

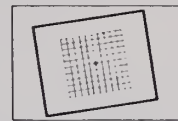


Figure 8

Now turn this folder over to take Test 3.

Figure 7

Letter to the Editor

Dear Editor:

In our article on Hyperuricemia of the July issue,* we failed to correct an error.

In the third paragraph, the second and third lines have inaccurate statements and should be corrected as follows . . .

"Primary hyperuricemia is caused by overproduction of uric acid in 25% of individuals. The remaining 75% have a combination of overproduction AND diminished urate excretion."

We would appreciate it if you could run this correction in the next journal.

Roger S. Colton, M.D.
St. Paul, Minnesota

Cover Photograph

"Delta Queen"

Dr. Dennis M. Robertson of the Mayo Clinic photographed the Delta Queen at the landing in Wabasha. He is a member of the "Turkey River All Stars," a dixieland band. Each summer during the past eight years the band has been invited to play as the Delta Queen cruises the upper parts of the Mississippi. Dr. Robertson plays the banjo, and the photo was taken just before the band boarded the ship.

A native of Minnesota and a graduate of the University of Minnesota Medical School, Dr. Robertson is a consultant and specialist of retinal and vitreous diseases at the Mayo Clinic. He is married and has four children.

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

September, 1982

8 TMP/SMZ. New Perspectives in Clinic Practice; U of M Medical School; U of M West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

9 Fifth Annual Meeting — Minnesota Boards of Health: "Partnerships in Health"; Community Health Services System; Radisson Arrowwood, Alexandria; CONTACT Deborah Plumb, Community Planner, Minn. Dept. of Health, 717 Delaware St. SE, Mpls., MN 55440, 612/296-5543.

9-10 Topics in Geriatric Medicine: Endocrinology and the Elderly; U of M Medical School; U of M West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

10 Violence — Rage of the 80's; North Memorial Medical Center; NMMC, Mpls.; CONTACT James Garvey, M.D., 3220 Lowry Ave. N., Mpls., MN 55422, 612/588-0616.

10-11 Sexual Attitude Reassessment Seminars; U of M; U of M Mpls.; CONTACT SAR Coordinator, Program in Human Sexuality, U of M, 2630 University Ave. SE, Mpls., MN 55414, 612/376-7520.

10-11 Controversies in Medicine; St. Louis Park Medical Center; SLPAC; CONTACT Elaine Anderson, SLPAC, 5000 West 39th St., Mpls., MN 55416, 612/927-3350.

13-17 Skeletal Radiology (Annual Radiology course); U of M Medical School; West Bank, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

14-15 Computerized Medical Records, Records Management for 80's; Minnesota Medical Record Assn.; Radisson St. Paul Hotel; CONTACT Kathy Johnson, RRA, St. Luke's Hospital, 915 East 1st St., Duluth, MN 55805, 218/726-5239.

15 Surgery; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

15-17 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health and Safety; St. Paul-Ramsey Medical Center; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

16 4th Annual Medical-Legal Symposium; Hennepin County Medical Society & Hennepin County Bar Assn.; Sheraton Park Place Hotel; CONTACT Thomas Hoban, Hennepin County Medical Society, Suite 423, 2221 University Ave. SE, Mpls., MN 55414, 612/623-3030.

16-17 Current Clinical Cardiology; United Hospitals, St. Paul; Radisson Plaza Hotel, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith Ave., St. Paul, MN 55102, 612/298-8558.

17 & 18 Current Clinical Cardiology; United Hospitals; Radisson Plaza, St. Paul; CONTACT Eleanor Waldrup, 333 N. Smith, St. Paul, MN 55102, 612/298-8558.

18 Annual Meeting, Southern Minnesota Medical Association; Red Cedar Inn, Austin; CONTACT Anthony Jaspers, M.D., Lake Crystal, MN 56055, 507/726-2136.

23 Annual Meeting, Minnesota Chapt., American Academy of Pediatrics; CONTACT Sue Mahle, M.D., Oakdale Medical Bldg., #405, 3366 Oakdale Ave. N., Mpls., MN 55422, 612/588-0758.

23-25 Trauma Seminar; U of M Medical School; Hennepin County Medical Center; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

24 Annual Meeting; Northwestern Pediatric Society; Chanhassen Dinner Theatre; CONTACT Stephen Boros, M.D., 612/298-8864.

24-25 Endourology: Percutaneous Access to the Urinary Tract; U of M Medical School; U of M Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

29-30 Cardiovascular Disease — 1982; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

30-October 2 Comprehensive Review of Infectious Diseases; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

October, 1982

1-2 8th Annual Meeting, Minnesota Chapt., Great Plains Organization for Perinatal Health Care; Sunwood Inn, St. Cloud; CONTACT Kimberly Bardis, Box 50 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-5718.

1-2 Therapeutic Dilemmas and Controversies in Medicine; St. Louis Park Medical Center Research Foundation; Marriot Inn, Bloomington; CONTACT Elaine Anderson, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

6-7 The Clinical Use of Exercise Testing, Prescription and Training; North Memorial Medical Center and U of M Medical School; NMMC, Mpls.; CONTACT Larry Hamm, Cardiovascular Rehabilitation, North Memorial Med. Ctr., 3220 Lowry Ave. N., Mpls., MN 55422, 612/588-0616.

6-8 Internal Medicine Review; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

October (continued)

7-8 Adolescent Medicine and Health Care; U of M Medical School; U of M, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

9 Current Trends in Ophthalmology — 6th Annual; Mount Sinai Hospital; L'hotel Sofitel, Mpls.; CONTACT Mrs. Evelyn Peterson, 2215 Park Ave., Mpls., MN 55404, 612/871-3700, ext. 1117.

14-15 Cancer Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

15 Update on Poisoning; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

15-16 Annual Seminar for CME Directors; Minnesota Medical Association; Spring Hill Center, Wayzata; CONTACT Teresa L. Rogstad, MMA, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

15-16 Sexual Attitude Reassessment Seminars; U of M; U of M Mpls.; CONTACT SAR Coordinator, Program in Human Sexuality, U of M, 2630 University Ave. SE, Mpls., MN 55414, 612/376-7520.

15-16 Eating Disorders; U of M Medical School; Registry Hotel, Bloomington; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

18 & 20 Basic Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Emergency Medicine; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 218/262-3441.

20-22 Clinical Microbiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

20-23 Principles of Colon and Rectal Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

21-23 Sexual Attitude Reassessment Seminar; U of M; U of M Mpls.; CONTACT SAR Coordinator, Program in Human Sexuality, U of M, 2630 University Ave. SE, Mpls., MN 55414, 612/376-7520.

21-23 16th Annual Orthopaedic and Trauma Seminar; Hennepin County Medical Center; HCCMC, Mpls.; CONTACT Rose Jagodzinski, Hennepin County Medical Ctr., Orthopaedic Dept., 701 Park Ave. S., Mpls., MN 55415, 612/347-2812.

21-23 Emergency Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; Rodeway Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

24 ENT for Primary Care Physicians; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

25-27 Clinical Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-30 Clinical Laboratory Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

November, 1982

4-5 Chemical Abuse Problems: A Practical Approach for Office Practice; U of M Medical School; St. John's Hospital, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center, Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

11-12 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

12-13 Common Problems in Medicine; St. Louis Park Medical Center Research Foundation; Location undetermined; CONTACT Elaine Anderson, St. Louis Park Med. Ctr. Research Foundation, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

13 Fall Meeting, Minnesota Society of Clinical Pathologists; U of M Mpls.; CONTACT Eugenia Stamboulieh, MSCP, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center, NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

December, 1982

1-2 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

7 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

For further information on *future* CME programs, contact Department of Education & Specialty Affairs, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

Classified Advertisements

Classified advertising rates are forty (40) cents a word; minimum monthly charge \$10.00, key number, \$2.00 additional. Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, 2221 University Ave. S.E., #400, Minneapolis 55414.

Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

FAMILY PHYSICIAN SW Minnesota rural primary care group (8 FP, 2 Surgeons, 1 Pediatrician, 1 Internist) in agricultural-commercial-university town of 11,000 needs BE/BC FP to maintain and develop patient-oriented group practice. Recently completed hospital and clinic share facilities in medical complex. Usual Chamber of Commerce Claims nearly true here! C. P. Martin, M.D., Doctors' Plaza, Marshall, MN 56258 #(507) 532-9631.

ORTHOPEDIC SURGEON WANTED — For a 20 doctor multi-specialty group. We have a new clinic building, new hospital and the great opportunities of Northern Minnesota to offer you. Compensation and fringe benefits are just what you are looking for. Please contact D.E. Carlson, Administrator, Bemidji Clinic, Ltd., Bemidji, Minnesota 56601. Telephone 218-751-1280.

ALLERGY AND NEPHROLOGIST

specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

FAMILY PRACTICE PHYSICIAN/ or PRIMARY CARE ORIENTED INTERNIST — To join two family practice physicians and a Board certified Surgeon in a group practice. Located in a Community of 2,500 in Southwest Minnesota. This Medical Clinic is supported by a modern 30 bed acute care Hospital and 138 bed skilled long term care facility. Guaranteed first year income, will pay travel expenses for interview. Interested Physicians send curriculum vitae to William Wilson, Administrator, Springfield Community Hospital, P.O. Box 146, Springfield, Minnesota 56087 or call collect (507) 723-4215 for more information.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call J.P. Merickel, M.D., 612-231-5000.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

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GENERAL SURGEON. Enjoy the security of group practice with the freedom of independent practice. If you are a Board Certified or Board Eligible General Surgeon, we have an interesting opportunity for you. A General Surgeon is needed immediately to form an independent practice in a very desirable Northern Wisconsin community with a drawing population of 100,000. All major specialists available for consultation. A growing community hospital with 240 beds with excellent medical and surgical subspecialty representation. Opportunities for endoscopy and peripheral vascular surgery also exist. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 55401.

OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

PEDIATRICIAN — BC/BE to join a 12 doctor multi-specialty group, southern Minnesota community of 12,000 (Trade area 70,000). Fairmont is a progressive city with excellent schools and recreational areas around a chain of five lakes. First year salary guaranteed with full partnership after one year. Contact Don Grandgenett, Administrator, Fairmont Medical Clinic, P.A., Fairmont, MN 56031. (507) 238-4263.

TAX AND INVESTMENT PLANNING. Busy professionals seldom have the time or training to plan their financial future with the sophistication our economic environment now requires. Chiattello and Powell specializes in comprehensive and professionally-responsible planning for practitioners, with a long-term personal relationship between client and planner. Call or write Herbert Schlossberg, Ph.D., Chiattello and Powell, Inc., 2215 Pillsbury Avenue, Minneapolis, Minnesota 55404. (612) 871-9429.

FAMILY PHYSICIAN to join group of six Board Certified Family Practitioners and one Board Certified General Surgeon. Liberal vacation and educational allowances. Competitive salary first year with incentive bonus, and full membership after one year. Blue Earth is a farming town of 4000 in Southern Minnesota with a drawing area of 25,000. 35 bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013. Phone: (507) 526-7371, Personal Phone: (507) 526-3177, Or Contact: Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

INTERNIST/NEPHROLOGIST Available 7/1/83. U. of Minnesota Medical school grad, 1973. Willing to do mostly general internal medicine with emphasis on kidney disease. Write: Minnesota Medicine (730), 2221 University Ave. S.E., Suite 400, Minneapolis, 55414.

APPLICATIONS WELCOMED from board-certified general radiologists with special interest in nuclear medicine at Saint Paul-Ramsey Medical Center. U of M Teaching appointment. Salary negotiable. Start immediately. Contact Philippe L'Heureux, M.D., (612) 221-3797.

(continued to page 582)

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(continued from page 581)

1983 CME CRUISE/CONFERENCES ON LEGAL-MEDICAL ISSUES — Caribbean, Mexican Riviera, Alaska, Mediterranean. 7-14 days in January, April, July, August. Seminars led by distinguished professors. Approved for 18-24 CME Category 1 credits. **FREE ROUNDTrip AIRFARE ON ALL CARIBBEAN, MEXICAN, ALASKAN CRUISES.** Excellent group fares on finest ships. All conferences, scheduled prior to 12/31/82, conform to IRS tax deductibility requirements under 1976 Tax Reform Act. Registration limited. For color brochures and additional information contact: International Conferences, 189 Lodge Avenue, Huntington Station, NY 11746. Phone (516) 549-0869.

ALL OF THE ADVANTAGES . . . An opportunity to practice primary care with a progressive group of physicians that values quality medicine, patient and family — centered practice, continuity of care, service to the community, and group compatibility in a location where the advantages of the Twin Cities are easily available but in a small town with the freedoms of a slower paced atmosphere.

This four-physician Family Practice is interviewing for two Family Practitioners to join the group to meet the patient needs in Glencoe and Lester Prairie, Minnesota. Glencoe is an ideal community — excellent schools, established industry and commerce, accredited hospital — and is only 53 miles from Minneapolis/St. Paul.

We welcome your interest and questions. Please contact Donald B. Rudy, M.D. or Gary Van House, Administrator, Glencoe Medical Clinic P.A. 525 East 18th Street, Glencoe, Minnesota 55336, (612) 864-3116.

CENTRAL WISCONSIN, a 50 physician multi-specialty group has openings for physicians in the following specialties: Otolaryngology, OB/GYN, Cardiology, Neuroradiology and General Surgery with a fellowship training in Peripheral Vascular Surgery. Competitive first year salary, incentive plan thereafter. Comprehensive fringe benefits. New facility near new hospital. Located in beautiful, quiet, central Wisconsin metropolitan area of 65,000. Recreational opportunities abundant. For more information contact: K. L. Day, M.D., Wausau Medical Center, S.C., 2727 Plaza Drive, Wausau, WI 54401 or call collect (715) 847-3351.

DIRECTOR EMERGENCY MEDICINE, EMERGENCY MEDICINE PHYSICIAN — St. Mary's Hospital, Duluth, is seeking two physicians to join our Emergency Care and Trauma Center. St. Mary's is the designated Regional Emergency Medical Resource Hospital and Area-wide Trauma Hospital. Located at the head of Lake Superior in Northern Minnesota, Duluth is a community of 100,000 people with many and varied cultural activities, 3 Universities/Colleges, and outstanding recreational opportunities.

The Director of Emergency Physicians *must* be Board certified in Emergency Medicine and should have prior directorship experience. Director will coordinate activities of 5 other Emergency Physicians. Background in development of Regional E.M.S. system would be beneficial. E.D. staff physician candidates should also be Board certified or prepared, although others will be considered.

Salary and benefit package for both positions is competitive. Benefits include paid malpractice, health, life, disability, and dental insurances, one month vacation, 2 weeks C.M.E. program leave, all in a 36 hour work week.

St. Mary's is a 380-bed community/regional hospital with 20,000 Emergency visits per year. Hospital is physically connected to 100 member multispecialty Clinic. St. Mary's is the regional perinatal center and will soon institute a cardiac surgery program. Other major programs include orthopedics and oncology.

If either of these opportunities is of interest to you or you would like additional information, please call collect or send C.V. to: Mr. James Cherveney, Executive Vice President, St. Mary's Hospital, 407 East Third Street, Duluth, Minnesota 55805, (218) 726-4486. An equal opportunity employer.

EXCLUSIVE UPPER BRACKET POKEGAMA LAKE HOME in northern Minn. Energy efficient convective loop solar home. Two story, 44 ft. long cedar greenhouse, 3 bdrms., study, studio, family rm., formal dining rm., 2½ baths, 2½ car insulated gar., \$165,000. Write Bev, CENTURY 21 Land of Lakes, 1105 W. 4th St., Grand Rapids, MN 55744. 218-326-0323.

HISTORIC LOG CABIN, 3 bedroom with guest cabin, on breathtakingly beautiful LAKE SUPERIOR. Fireplaces, 600' of lakeshore with dramatic cliffs and woods. Lutsen, Minnesota. \$400.00 weekly. 920-7537 or 333-8361 (Jim).

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CLINIC PRACTICE FOR SALE — St. Paul Industrial and Gen. Surgery. Many years estab practice — former Emerson Clinic — Will introduce buyer to Ins firms, Indust. plants, Bargeline operators plus many private pts including 3rd generation families. Complete office equip, supplies, files, patient records, extensive P.T. equip, x-ray, lab & pharm. Newly decorated & carpeted waiting room, 6 rooms including emerg. room. Modest down payment — long term financing 10% int. E. C. Emerson, M.D. 806 E. 7th St., St. Paul, Mn. 55106 — 612-776-2744.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

MEDICAL STUDENT going into fourth year in September 1982, North American studying in Mexico, urgently seeks guidance and financial support until she obtains her license in the U.S. In exchange for each year of support, she agrees to serve for a year in sponsor organization. Advertiser speaks Spanish, German, Polish, Italian and other related languages besides English. Contact MINNESOTA MEDICINE (729), 2221 University Avenue SE, Suite 400, Minneapolis 55414.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

WANTED: Family practitioner, internist, OB-GYN to join mutli-specialty group. One month vacation, hunting, fishing, and lake recreation area. Starting salary excellent: many fringe benefits included. Write Minnesota Medicine (704), 2221 University Ave. S.E. #400, Minneapolis 55414.

COMMUNITY PSYCHIATRIST: Excellent opportunity for diversified practice with stable and innovative mental health organization. Current staff includes one full time and two part time experienced psychiatrists as well as more than 65 other direct care and support staff. Programs include inpatient, partial care, outpatient, special services for children, the elderly, and the chronically mentally ill as well as alcohol and drug dependency, and a very interesting comprehensive pre-paid program with a health maintenance organization. The Center has strong public and private support and serves an area of about 100,000 people. The area has extraordinary four-season recreational opportunities, yet is close to cultural and population centers. Current salary range is \$50,000-65,000 with appointment above minimum possible depending on qualifications. Included also is an attractive fringe package including interview expenses and a generous moving allowance. If interested, please contact Miller A. Friesen, Executive Director, Range Mental Health Center, Box 1188, Virginia, MN 55792 or call (collect) 218-749-2881. AA/EOE

ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

ORTHOPEDIC SURGEON urgently needed in progressive multi-specialty group. Salary negotiable. Numerous fringe benefits. All paid. Early partnership. Located in thriving agricultural community in northeastern North Dakota with excellent fishing and goose hunting. Send CV to Administrator, Lake Region Clinic, P.C., Box 1100, Devils Lake, ND 58301. All CVs held strictly confidential.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

SOLAR DESIGN ARCHITECTS with specialty in the design of residences, apartment buildings, clinics and nursing homes. Excellence in design with construction cost control. Call or write Randy Engel, Principal, R. L. Engel and Company, 2905 Dean Parkway, Minneapolis, Minnesota 55416. (612) 920-0803.

(continued to page 584)

Classified Advertisement

(continued from page 583)

OB/GYN SPECIALISTS. Enjoy the security of group practice with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

PSYCHIATRIST AND FAMILY physicians needed at Moose Lake State Hospital, located in excellent fishing and hunting country and just 35 miles from Duluth. Salaries are competitive. Contact medical director Robert W. Schulz, M.D., Moose Lake, MN 55767.

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INTERNIST, CERTIFIED, with subspecialty interest in gastroenterology or cardiology to eventually assume practice. Secure income. P. H. Soucheray, M.D., 2101 Beaser Avenue, Ashland, Wisc. 54806.

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FAMILY PHYSICIAN FOR PROGRESSIVE RURAL MINNESOTA CLINIC. New and superbly-equipped facility. A pleasant farming community in a physician shortage area, yet only 25 minutes from a metro area. A comfortable call schedule at nearby hospital. Gateway to Minnesota's famous lake country. Young and growing practice with excellent salary and benefits, ownership potential. Must be board-eligible. Call or write to Mr. David A. Nelson or Faris Keeling, M.D. at 218-354-2111 or write to Barnesville Area Clinic, P.O. Box 521, Barnesville, MN 56514.

Thomas Peter Garry — 1884-1963 Anatomist, Royal College of Surgeons, Dublin

I am gathering information on my uncle, Tom Garry who was associated as an Anatomist with the Royal College of Surgeons, Dublin, for fifty years. The information will be used to publish a short biography and a 'Garry's Anatomy'.

Tom Garry, who was a very colorful personality, was primarily a teacher of Anatomy with an original and unique approach to his subject.

I would like to hear from any past students, under graduates and post-graduates, who attended his famous Anatomy grind and who may have kept notes of his teaching. Photocopies of material would be appreciated. I would also appreciate hearing from anybody with an interest in this project.

Dr. John Garry
2971 West 28th Avenue
Vancouver, B.C.
V6L 1X3

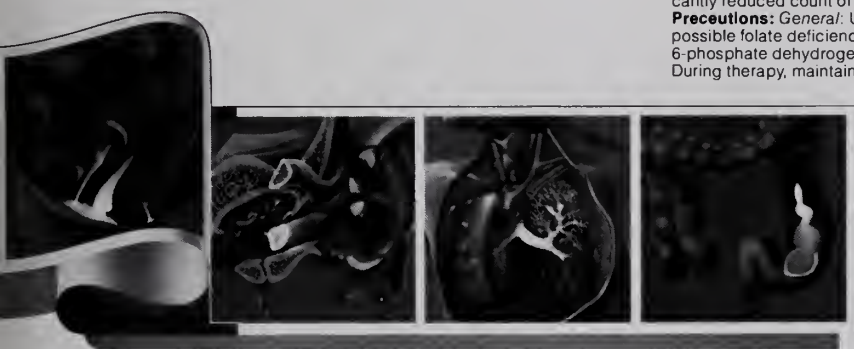
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BACTRIMTM (trimethoprim and sulfamethoxazole/Roche)
Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli*, *Klebsiella-Enterobacter*, *Proteus mirabilis*, *Proteus vulgaris*, *Proteus morganii*. It is recommended that initial episode of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. Note: The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonia.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: **BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS.** Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: **General:** Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. **Blood dyscrasias:** Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. **Allergic reactions:** Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. **Gastrointestinal reactions:** Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. **CNS reactions:** Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. **Miscellaneous reactions:** Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN.

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:
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PNEUMOCYSTIS CARINII PNEUMONITIS:
Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

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1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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160 mg trimethoprim and 800 mg sulfamethoxazole

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* due to susceptible strains of indicated organisms

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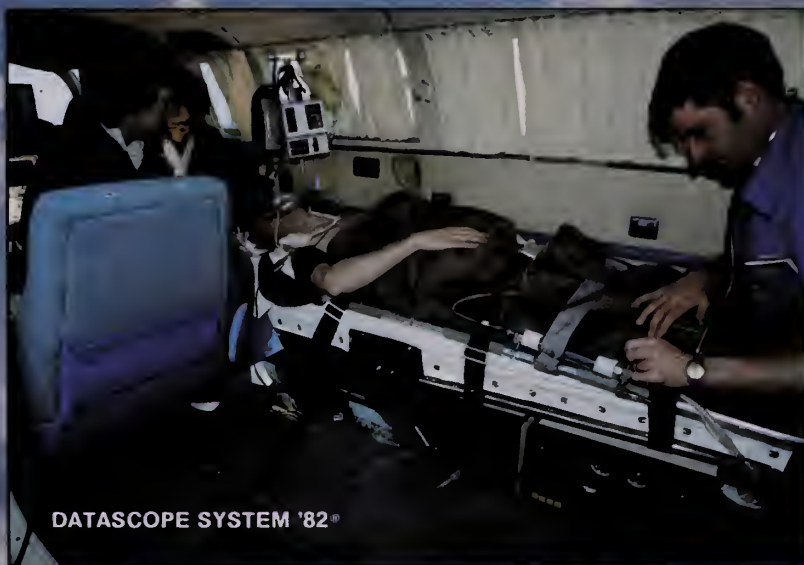
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President's Letter

A Single Voice



One of the top priorities of the AMA and the MMA is the recruitment and retention of members. In this era of change, both within and outside our profession, it is imperative that we speak with one voice. Only an uneducated, apathetic physician could feel that nothing changes in spite of organized medicine's efforts.

The AMA and the MMA are committed to having all physicians as members, be they private practitioners, women physicians, HMO physicians, medical students and residents, or academic physicians. With these physicians under *one* umbrella your organizations can address the issues as a unified voice. One individual physician speaking before a legislative committee or governmental agency does not have the impact of one who speaks for organized medicine.

Your state and national organizations are effective, and your dues dollars are well spent. Involved physicians, with excellent staff, are striving to assure quality medical education and care, to educate the public on medical issues, to represent you before state and national legislative bodies, to have on-going dialogues with governmental agencies, to represent our unified views to the media, and to communicate with third party payers. Additionally, your organizations offer many tangible benefits to members, such as: group life and disability insurance, auto leasing, and eligibility to obtain professional liability insurance from a captive insurance company. Savings from all these benefits offset the cost of membership.

MINNESOTA MEDICINE, the new monthly newsletter MMA MONITOR, and other useful publications, such as the MMA Temporary Disability Duration Guide are sent to all dues paying members.

AMA membership for eligible physicians has dropped from 66% in 1960 to approximately 45% today. The trend for not joining appears to be highest in the under 45 year age group. However, increased numbers of residents and medical students are joining. Perhaps the increase in both salaried and female physicians is a factor. Another cause is certainly specialty splintering and the legal fact that county

society membership is no longer required for hospital staff membership. Organized medicine is working toward innovative methods for easy entrance into the system, eliminating roadblocks used as excuses for not joining. We must *emphasize* the fact that we are a professional organization rather than an honor society.

Some bright signs *are* on the horizon. Specialty groups are gaining representation in various Houses of Delegates. Medical students and residents are represented and voicing their views, a refreshing sight and a good sign. Your MMA Board of Trustees has had a voting medical student-resident member for a number of years, and it is a pleasure to state that of the four medical student-resident board members, three have been keen, articulate women. Efforts currently are underway to better organize the women physicians in Minnesota. The recruitment of academic physicians is ongoing and important, for their membership and example have a direct influence on medical student-resident participation.

The problem is national, but the solution is local. Each county society must have members willing to work on a one-to-one basis for membership recruitment and retention. As President of the MMA, Frank E. Johnson, M.D. wrote these words in 1979:

"I have a strong conviction that all physicians have a citizen's duty to be dues paying members of organized medicine at the county, state and national levels. Even more they have a duty to be active in pouring their thoughts and ideas into the organization for distillation and refinement, and once these ideas are considered and accepted, modified, or discarded, they must allow medicine to express with a single voice the opinion of the majority."

A statement with which we must all agree.

A handwritten signature in dark ink, reading "Severin H. Koop".

Severin H. Koop, M.D.
President
Minnesota Medical Association

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octoberfest

dear
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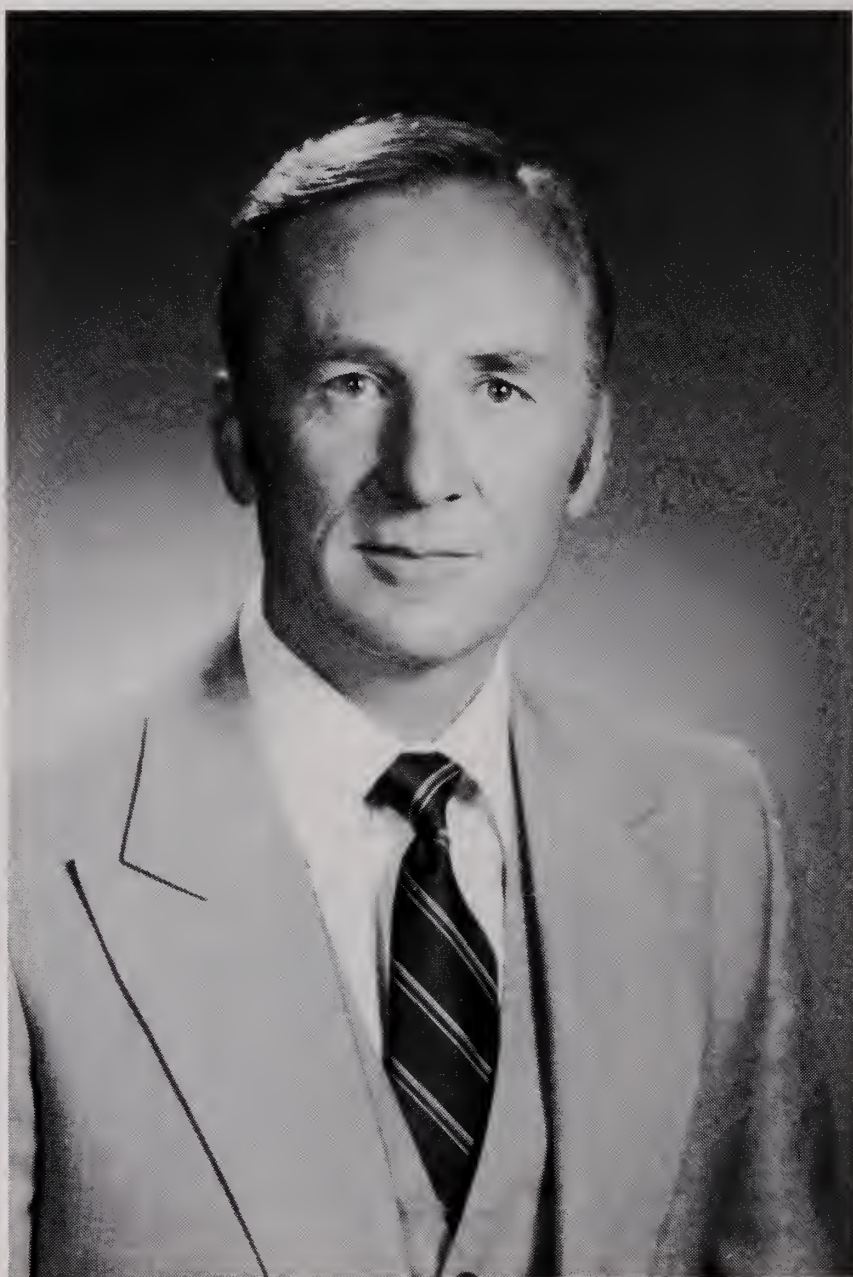
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Carl Gustafson
Executive Vice President
Foundation for Health Care Evaluation

Carl Gustafson

The James H. Sova Memorial Award has been established by the Minnesota Medical Association to give recognition to the contributions of non-physicians in promoting quality medical services. The first recipient of this award is Carl Gustafson, chief executive officer of the Foundation for Health Care Evaluation (FHCE). In making this selection, the MMA has established high standards for the giving of this Award.

Mr. Gustafson has given 31 years of dedicated, constructive, and productive leadership to medicine. He has served as administrative assistant at the Duluth Clinic, vice-president of Blue Cross/Blue Shield of Minnesota, and executive director of the Foundation for Health Care Evaluation since its acceptance in 1971.

The FHCE is a physician-founded and physician-directed organization that seeks to work with various groups and interests such as the business community, insurance industry and hospital administration in promoting high quality medical care at reasonable cost.

In 1973, the Foundation found that the PSRO legislation was consistent with its own goals and philosophy. It sought and was awarded the role of the Professional Standards Review Organization for central and northern Minnesota.

In 1980, the Foundation developed a private review program in the Metropolitan area, in which industry and organized medicine collaborate to reduce waste while maintaining quality in medical care. These and several other roles of the FHCE have been controversial for physicians and for other groups as well.

As leader of the Foundation, Mr. Gustafson has lent his many fine qualities and talents:

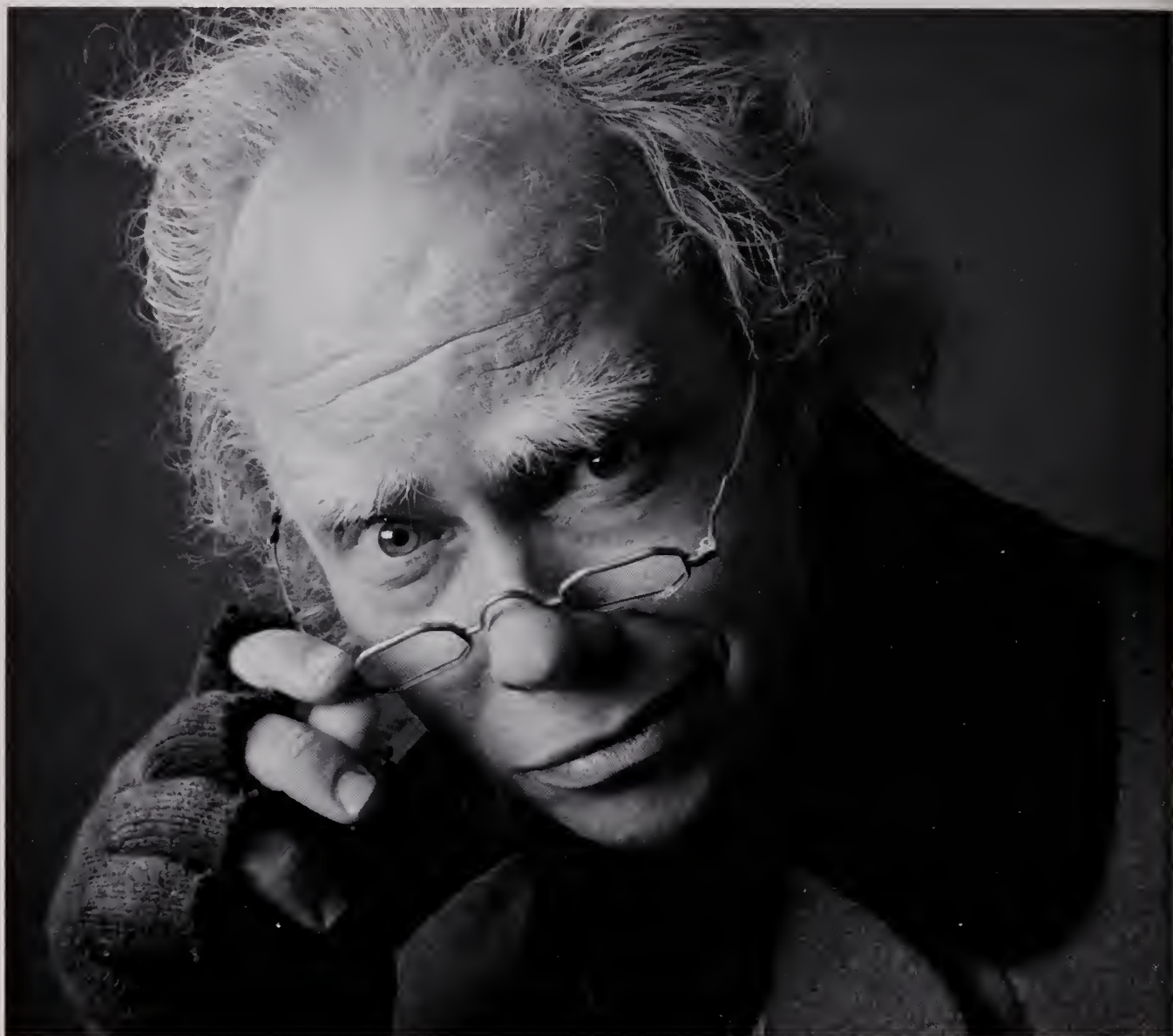
- superb management ability including being able to attract and keep a talented and effective staff
- thorough knowledge of the economics of medicine and business
- sympathetic understanding of physician's professional needs and concerns
- dedication to the concept of physician leadership and involvement in solving the problems of delivery of medical care
- staunch defender against any encroachment of government beyond its legitimate role and contractual agreements

In all of his contacts with physicians in this difficult work, he has earned and maintained the universal respect of those with whom he has worked. It is a person of unique qualities that can be involved in controversial areas without his/herself becoming controversial. Carl Gustafson has achieved this.

All the doctors of Minnesota thank Carl Gustafson for his excellent service and many contributions over these many years.

Donald Bell, M.D.
President-Elect
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Address

How Others See Us — A Peer Review Perspective

An excerpt of a presentation delivered by Carl G. Gustafson, Executive Vice President, Foundation of Health Care Evaluation, at a meeting of the Ramsey County Medical Society, August 30, 1982.

I very much appreciate this opportunity to speak with you on the topic "How Others See Us — A Peer Review Perspective." You are to be congratulated on your willingness to invite comments and receive suggestions from those whose experience might provide a mirror, or a view of yourselves which may be useful.

For those who are not familiar with my background, I have worked with physicians for thirty years. The first seven of those years was at the Duluth Clinic, a group of 40 physicians at the time, where I was office manager. For the next thirteen years I was employed by Blue Shield where one of my responsibilities was to communicate with physicians on all aspects of Blue Shield activity. Then, for the last eleven and a half years I have been with the Foundation and have enjoyed another perspective of how physicians conduct themselves on a day-to-day basis, as well as, some of their attitudes on social and economic issues. Because of this previous exposure, I will take the liberty to draw from more than a peer review perspective as we discuss the general topic of "how others see us." Much of what I will say is my personal opinion and does not represent the position of the Foundation. You may not agree with some of my comments, but please accept them as an honest and constructive reflection from one who cares.

Let me say, initially, that I have a great respect for the medical profession, I have enjoyed a long friendship with many physicians and expect them to remain friends for as long as I live. To many, I am one of you rather than one of the "others." To appreciate my feelings for the medical profession, you must realize that in these 30 years I have witnessed great physician leadership, but also some physician behavior which could be described as less than the most desirable.

Medicine has many more positive aspects than we will attempt to describe in this setting. Certainly we are all aware of them. The creativity of medicine in this country is almost limitless. The advances in medicine are equalled nowhere else in the world. Physicians are often community leaders. You are regarded for your high intellect and your contribution to the quality of life in our community. It's no wonder, then, that people hold you in high esteem. I know I do. You've spent

years in a gruelling effort to know the structure and process of human life. I can't imagine a more difficult task. It has required the understanding of complexities within complexities, and there has been more pressure placed on you in a few years than most people would be willing to take in a life-time. I stand here in amazement at what you accomplish. But, since I spend so much of my time affirming and defending physicians and since I feel you did not invite me for that purpose, I will devote this time to identifying areas where things might become or might have been more positive.

Critics have described medicine as a conservative profession. Some have even described you as stodgy "hangers on" to an old system. There is a danger in generalizing in any group and certainly many physicians cannot be categorized in this manner. Some have worked very hard to assure physician's control over peer review and in so doing they are strengthening medicine's accountability to itself and its patients. One expert has described the development of the physician's particular state of mind in the following way:

"Given that the work of the medical practitioner is with individuals and that it is believed to be based on individual clinical experience, it follows that responsibility for the work can be perceived only as individual and personal. In assuring that responsibility, the practitioner does gain gratitude for success, but he also risks reproach for failure. Given the risk of blame, he displays a certain sensitivity and defensiveness in the face of any outsider's evaluation of his performance. This defensiveness is manifested in imputting more uncertainty to the work than in fact exists and in insisting on using his own personal, clinical experience as the ultimate criterion for evaluating his own performance." (Eliot Freidson)

Physicians operate as individuals. In medical training, one physician is assigned to one patient. This direct and solo relationship is repeated throughout your careers. In clinical settings, this usually works out well; although, when patients need to be referred there may be problems with continuity of care. Was the patient referred soon enough, did enough information get transferred, who takes care of the whole patient, will the patient return? Socio-medical and delivery issues put individualism to the test. Membership organizations have a tendency to lose the silent

majority. Political issues and new initiatives tend to galvanize and divide. Simple dissemination of new ideas becomes a major challenge. It is difficult under the best circumstances to forge a team of physicians to work on a common problem. I don't mean a committee to formulate a position; I mean an organic team where the sum is greater than the parts. Where the solutions are not a lowest common denominator, but where fresh ideas emerge from the team. This often places physicians at an unfavorable disadvantage in program development. Those who can band together and work as teams, i.e., drug companies, universities, insurers, or bureaucrats, become the source of initiatives in the organization and delivery of health care. Physicians have been remarkable innovators in the content of medical knowledge and although it seems perilous at times they should increase their willingness to innovate in the organization of health services.

Physicians are often confronted with moral and ethical dilemmas not experienced by much of society or not as obvious in other areas. Certainly, businessmen and politicians confront ethical problems, but they tend to be more subtle and more abstract than face to face encounters with human beings regarding their health. The constancy and acuity of these decisions has a positive effect on clinical care since the physician has his own precedence as a guide. However, when taken outside of the care giving realm, this characteristic can express itself in dichotomous and moralistic ways. There is some tendency on the part of physicians to see things in right or wrong, black or white terms and there is some tendency to put moral overtones on social issues. When this occurs issues become crusades against HMOs, advertising, peer review, etc. Elaborate ethical cannons are fashioned to deal with such issues. But, the man on the street doesn't see such issues as moral, furthermore, he has a keen eye for self interest. Blocking advertising seems suspicious in the first place, putting one's opposition in a cloak of morality tends to come off as hypocritical. Physicians may be better off reserving moral judgment for clear cut disinterested issues and by being more direct about their self interest.

Physicians are trained and operate in the world in which definition and selection are the ways to solve problems. The process of diagnosing and treating is elegant and in some ways resembles the process of a computer system. For patient care, this problem solving approach has many benefits. It usually leads to intervention and it usually leads to interventions which work with acute illness. However, when physicians take this problem solving approach into other arenas, there can be negative implications. There is a tendency

to be decisive and action oriented, even though some problems do not lend themselves to this approach. In business and politics many problems have not one, but several solutions. Some problems are insoluble. Often not the best solution but the most feasible and practical is selected.

A major appeal of medicine as a profession, is the reasonable certitude of work, the relatively high income and understanding of what is expected of the physician. The reality undergirding these assumptions may be changing but the perceptions, personalities and attitudes of those already in the field still tend to express themselves in risk minimizing behavior. Simply put, physicians tend not to be risk takers. In the socio-medical world this has the positive consequence of delaying or averting fadish treatments or ways of organizing and financing health care. On the other hand, it tends to also slow some legitimate innovation and entrepreneurship.

In its attempts to block Medicare and Medicaid in the 1960s, medicine assumed an ideological and political position. Most people strongly believed that something should be done to help the elderly and the poor. There was actuarial evidence to indicate that the particular solutions recommended would be catastrophically expensive. Yet most people were disappointed when it appeared medicine was insensitive to the needs of the poor and the elderly, by their failure to design a better system on rationale grounds. Instead, what they witnessed was the end of a long struggle to prevent socialized medicine and the beginning of a solution designed by politicians and lawyers, not care givers. Many individuals, not a part of the medical profession, view physician history in social and political areas as one of reacting rather than acting, of defending rather than creating.

Physicians are trained to assume responsibility and authority and to be captains of the ship. Because they deal with uncertainty and potential failure, they learn to accept defeat as part of the job. In other fields the norm is to diffuse responsibility and blame others or the system for failure. As a professional, and a very special kind of professional, the individual physician commands respect in most situations in American society. Physicians are assumed to know the right answer. This can also cause confusion as we have witnessed in the Hinkley case. The adversarial system of the law forced them to debate psychiatric issues and as a result it appeared that there was a lack of scientific evidence to support their opinions. Medicine loses when physicians appear unsure and unscientific or they appear to be letting someone off the hook.

Countless public surveys have reported that most

people have a positive attitude towards their physician but a less positive attitude toward the medical profession in general. You hold a special place in society. You are placed in a position of privilege. You live well, people defer to you and call you by your title. It may be easy to forget that the cab driver also works 12-14 hours a day and is drained of energy when he's through. And it is he and others like him who provide the income which supports your lifestyle, a lifestyle which he himself can only dream about. Jealousy and envy are unfortunately part of the human personality. Could this relative affluence be part of the cause for the public's diminishing feelings about medicine as a profession? If so, what can be done about it?

Now, as much or more than ever, physicians should exhibit real caring and sensitivity for their patients. Some have said that the caring portion of health care has been diminishing in recent years as physicians and hospitals struggle increasingly to gain a fair share of the market. Others have expressed the opinion that they have felt like a product going through a processing line when receiving treatment rather than a human being with very human problems and needs. I'm sure these are in the minority, but they may call to mind the need to take time to listen and hear, to look and see, to touch and feel in a way which makes clear that your patient's welfare has special meaning to you. Hurry, worry and bury need not describe our society in these times.

If physicians and the medical profession in general are to retain their rightful place in public opinion, they must do even more than act sensitively to their own patients. The medical profession as a whole must move positively to solve the major public policy issues involved in how health care is organized and delivered. Physicians might be encouraged to experiment with different approaches to solving problems. Physicians may benefit from finding new and better ways of working together as teams. Physicians should be encouraged to get involved in the complexities of problems and should be honest about why problems are problems for them. Physicians should not assume the authority of leadership, but earn it, when acting outside their field.

One of the ways in which physicians can confront a number of problems both within the profession and in society more generally is through peer review. I'd like to suggest that peer review has and will offer one of the best opportunities for physicians to react to the criticisms which you receive.

Peer review is fundamentally a committee activity. It is an expression of the community of physicians acting in consort towards the betterment of all. As such

it is a counterpoint to the physician's natural individualism. Peer review offers physicians new insights into ways of solving both clinical and social problems. Indeed it represents the fulcrum of society's expectations on medicine and medicine's response. Accordingly, peer review broadens the problem solving skills of physicians. Peer review is never easy. The mere act of standing in judgment forces one to see the grey issues, to put aside moral overtones — in sum to confront medical social issues at their root. Rather than passing detached opinion on what is right or wrong, one is forced to examine the details and the implications. Peer review is a progressive act. It is not reacting to society's view of health care but assuming responsibility for creating and enforcing norms of behavior. Peer review is a visible symbol of a willingness to admit to human deficiencies and more importantly to grow from the experience.

Finally, peer review is one of the most altruistic acts the average physician can perform. In an age with very little "free care" it remains a voluntary act and a contribution of the physician's most precious commodities; his expertise and his time.

Yet, it seems to me that too few physicians are carrying the burden of peer review. Although we have witnessed a change, many appear to be content to be uninvolved, either because they don't wish to take the time, they lack confidence or courage, or because they have some philosophical disagreement with peer review. Perhaps they distrust the Foundation as their community agent for carrying out review. This reticence has been referred to as a conspiracy of silence. Reluctance to deal with inferior performers is not unique to the medical profession. Yet only physicians can review and determine when medical intervention falls beneath its own standards. A patient is limited, at best, in assessing the care which he has received, not to mention his ability to assess competence prior to selecting a physician. Yes, he knows when the staff of the physician's office is friendly and congenial, he knows if his appointment is carried out on time and he knows if the physician is sensitive; and yet he does not understand enough about medicine to know whether he feels better because of, or in spite of, the medical intervention of the physician. Consequently, in the discussion of competition in health care so popular today, we must recognize the difference between the capacity of the buyer to judge the desirability of a given product compared to his capacity to judge the skill of one physician compared to another. And how will competition work in rural America where there is one hospital and two or three doctors in small communities? Remember too, that the

stakes might be far greater when choosing a physician than when choosing most other goods or services. Competition will not eliminate the need for physician involvement in peer review, but if anything, it will increase the need for professional monitoring of quality in the cost conscious marketplace. Only time will convince skeptics that the laws of competitive economics will have the same effect when applied to health care as they do in business. This is not to say competition should not exist, but rather to express doubt that we know much about the results it will bring.

Physicians have long said that they would like the Foundation to become more involved in areas related to quality of care and less involved in health care costs. And yet nearly every attempt which has been made to address quality issues has been thwarted by disagreement on what represents good quality care. Some are still arguing about the definition of quality care. From our experience, it would appear that the medical profession is better able to discuss and deal with cost issues than it is with issues relating to upgrading standards of quality or dealing with deficient practices when they are detected. Perhaps this is because, by its very nature, quality deals with physician competence whereas costs are much less directly reflective of the practicing physician.

In a recent survey, the Foundation asked 400 physicians, selected at random from throughout Minnesota, a series of questions. The responses were broken down between those who were considered knowledgeable of the Foundation and those who had no exposure whatever. Included with the responses were the following opinions:

- 58% of all and 75% of those knowledgeable agreed that the Foundation has a valuable role in helping control health care costs.
- 86% of all respondents would like the Foundation to find effective means of keeping down costs of care.
- 79% of all respondents would like the Foundation to limit inappropriate utilization of expensive health resources.
- 74% of all and 90% of those knowledgeable agree that the Foundation is the best organization to gather and analyze data on health utilization.
- 73% of all and 84% of those knowledgeable agree peer review is a useful way to establish community wide standards for health care services.
- 61% of all respondents believe the Foundation has not done enough to control the small minority who have abused the practice of medicine.
- 85% of all respondents disagree that peer review

can never work.

- 75% of all respondents agree the traditional respect for physicians is diminishing or slipping, and yet,
- 47% of all and 54% of those knowledgeable agree that physicians who become involved with the Foundation risk disapproval of their peers.

Dealing with deficient physician peers is distasteful, if not repugnant. Many would rather leave such activity to the courts. We noted that 84% agree that peer review is a useful way to establish community wide standards for health care and 85% disagree that peer review can never work. Why then does there appear to be such a reluctance on the part of physicians to become involved in peer review? Some members of the profession have given large portions of their time but most appear to be extremely reluctant. Perhaps it is because of your high calling that we expect more than is reasonable from you.

The AMA has stated that it is supportive of non-federal review — that is, review not sponsored by the Federal Government. Non-federal review is what has been conducted in the Twin Cities for the last year. During its first year just completed, it appears that the Private Review program has done most of the things which we had hoped it would accomplish. As you all know, we contracted with 16 major Twin City employers. The total number of employees and dependents included in the utilization review program was 135,000. Seventy-five physicians volunteered to be medical advisors. During this year of Private Review 10,432 reviews were performed. Hospitalization subject to Private Review totalled 62,143 hospital days and approximately \$21,000,000. The average length of stay for these hospital cases was 5.9 days. The days per thousand employees, through the first year, was 505. This compared to 850 days/thousand for the 12 months preceding Private Review as determined and contributed by the companies prior to initiation of the program. We recognize that several elements could have caused this change in addition to Private Review. Yet one of the companies found that only in the Twin Cities did its experience moderate while in all other cities where it offices the trend continued upward. The cost-benefit ratio of the program has been very satisfactory in the judgment of the companies. These accomplishments occurred without negatively affecting quality of care, merely by attempting to use acute facilities only when there is a medical necessity. We have also found that companies are offering to modify or make exceptions to their employee health benefit contracts to encourage services to be rendered on a non-acute basis. This has

relieved the pressure on the physician to admit patients so that the care will be covered by insurance.

The evaluation committee which was charged with assessing the first year of Private Review activity reached the following additional positive conclusions: (1) That the program has the potential to strengthen the competitive position of fee-for-service medicine. (2) That the program enhances peer discussion. (3) That the program focuses on the clinical decisions of physicians who order most of the care rendered. (4) That preadmission certification does deter unnecessary admission to the hospital. (5) That an effective private data base is being created for the first time.

We have found that a number of changes and improvements are necessary in Private Review and we will strive to affect those changes in the second year. Some of those will include: (1) improvement in the preadmission certification element of the program by better education of employees, communications to physicians and consideration of incentives. (2) upgrading of the list of procedures which under proper circumstances may be rendered on an ambulatory or non-hospitalized basis; (3) improvement of the admission criteria for psych and chemical dependent patients; (4) development of criteria for A.M. admissions on the day of surgery; (5) improve

acceptance of Private Review among physicians; (6) upgrading of the quality and the size of the database; and (7) we will attempt to introduce focusing into the program where it is justified by experience.

The Foundation is governed by physicians. Physicians make all decisions relating to the medical necessity of hospitalization. You can depend on the Foundation's Board of Directors to disassociate itself with any program where someone other than physicians is responsible for medical decisions.

In our survey of 400 Minnesota physicians, they said the three greatest problems facing medicine today are: (1) Holding down the *cost* of health services; (2) Retaining *professional control* over medicine; (3) Assuring *equal access* to quality health care for everyone — in that order.

The Foundation was created specifically to address needs of this type. They comprise a major share of our mission. We ask for your help, cooperation and support as we attempt to be more sensitive and effective when facing the complexities and challenges of our role in Peer Review.

When reflecting on what motivates each of us today, one must believe we would be better served if our drive came from the desire to one day hear the words — “well done good and faithful servant.”

Cover Photograph

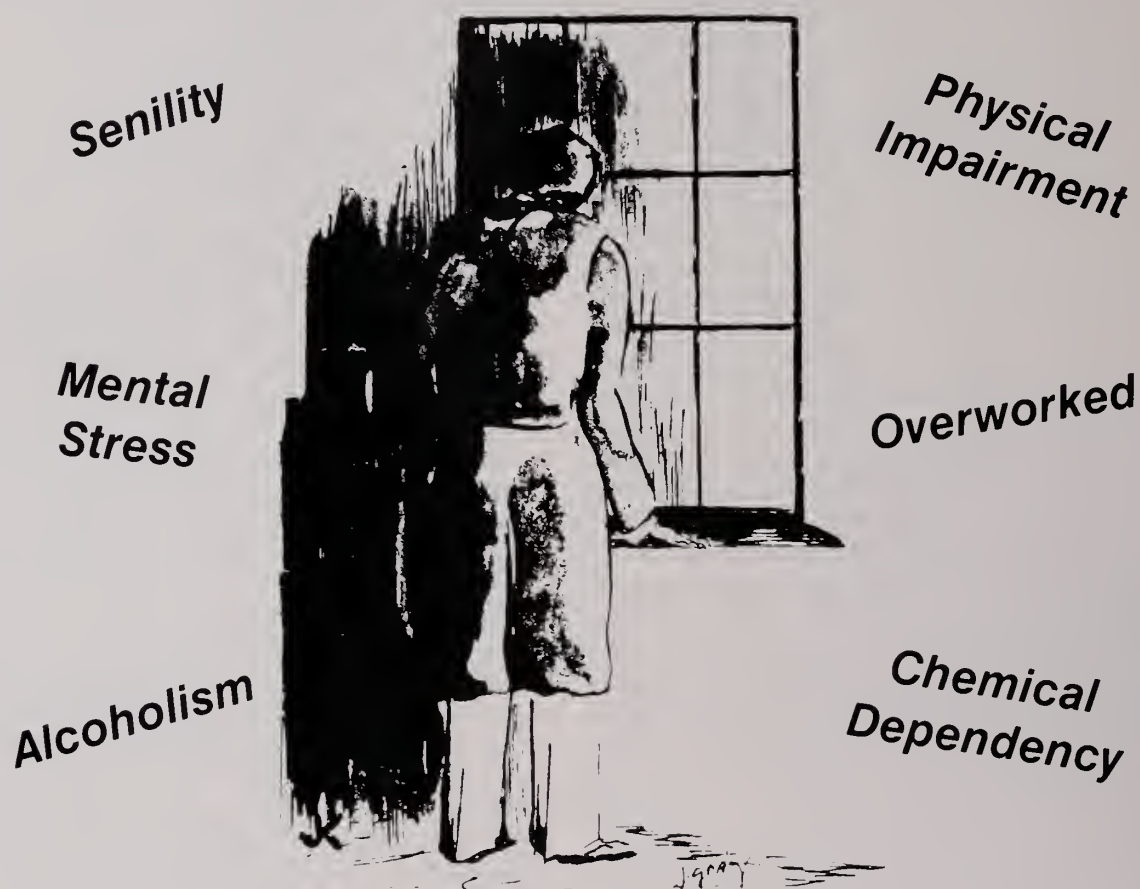
“Rhapsody in Gold”

Dr. Freeman D. Kovack is a family practitioner practicing in a group practice in Minneapolis. His medical degree was obtained at the University of Vienna; however, he has been practicing medicine in Minnesota since 1952.

“Rhapsody in Gold” was taken at the Minnesota Arboretum. Dr. Kovack used a Nikon F5 with Tamaron zoom lens, and Kodachrome daylight film 64, 1/125 seconds at F8.

The June, 1980, issue of MINNESOTA MEDICINE featured another cover by Dr. Kovack. This was called “Northern Minnesota Serenity” and received honorable mention by the Board of Editors in its yearly appraisal of the photos published on the covers of MINNESOTA MEDICINE for a given year.

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Special Article

Primary Care Internal Medicine Residency at Hennepin County Medical Center (1970-1977)

Where Did They Come From, Where Are They Now, and What Do They Do?

ARTHUR LEONARD, M.D., F.A.C.P.*

The Department of Medicine at Hennepin County Medical Center presents its data on matching characteristics of its primary care, general internal medicine residency from 1970-1977 in the context of external and internal influences. We also followed up on 193 graduates who at one time were residents in our program from 1965 to the present. Our results are interpreted to show that our county program may not be typical of those in the past: our program has become more reputable nationally; academic accomplishments of candidates and matched residents continue to improve; school distribution is not regionally limited; about three-fourths practice internal medicine and two-thirds practice primary care; yet, 22% are in full-time academic medicine; one-third practice in rural settings.

SINCE THE ESTABLISHMENT of graduate training in Internal Medicine at Hennepin County Medical Center (HCMC) in 1970, information has been kept regarding applicants, the selection process, NRMP results, and, recently, matched first year candidate undergraduate academic achievement, as well as outcomes of all those entering our program at any level, i.e., where they go and what they do. Our purpose here is to review these data, note trends, and attempt to explain them in the context of multiple internal and external changes which have occurred during the 1970-1977 study period. This will be useful for our faculty for future decision-making concerning selection and program changes; it may have important implications for other similar institutions, e.g., major public teaching affiliates of universities, and national policy-making organizations, such as AAMC, NRMP, ABIM, and ACGME.

Some of the external changes occurring during this period are: increases in the number of medical schools and size of admitted classes and graduates, special minorities admissions programs, increased numbers of women admitted to and graduating from medical schools, deletion of the internship *per se*, resultant shrinkage in the number of accredited Internal

Medicine residency training programs, strong public and governmental emphasis upon primary care graduate training programs (including Internal Medicine), increasing restrictions placed upon foreign medical graduates (FMGs) desiring training in American graduate training programs, rapidly increasing number of graduates competing for decreasing number of accredited primary care Internal Medicine first year positions, more applications per applicant, an increasing proportion of unmatched candidates due to a near unity ratio of applicants to positions available in Internal Medicine, and, at the time of writing, the yet to be clearly worked out impact of governmental involvement in the post-graduate training of American students trained outside of the U.S.

During the same time, the following internal changes occurred in the HCMC Internal Medicine graduate training program: nomenclature change from R1 to categorical diversified to categorical (1976), an increase in the full-time faculty from 10 to 27, the building and habitation of a new facility (1976), marked alterations of the graduate curriculum (1973 to present) toward a primary care outcome while, simultaneously, strengthening the training in specialties to facilitate our graduates' practice of quality, consultative Internal Medicine, which is surely part of their future role, a core three-year program with a limited number of fourth-year optional positions in General Internal Medicine, maintenance of full

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under-graduate and graduate university affiliation yet autonomy in graduate curriculum with integration easily arranged, and special curriculum revisions (1975 to present) involving educational experiences with differing physician, patient, and facility mixes at all training levels.

Methods

Matching information has been accurately kept during the study period, as has practice and placement data on our graduates. Academic demographics of matched residents have been recorded systematically only during the last biennium (1976-7 and 1977-8). In reviewing the applicant information from our files, we found that certain 1975 applicant data were incomplete: we had only the final ranking and matching lists submitted to and received from NRMP. We did find notations that our original applicant number in 1975 totalled 330; since our NRMP rank list numbered 268, there were, therefore, 62 unranked ("X'd") applicants. It is the demographic characteristics of these 62 which is missing. The inaccuracies of our 1975 information pertain only to the total number of applicants, not to those ranked. Therefore, this reflects underestimates only in identifying the schools or origin of the total number applying. All other information is accurate and complete. Follow-up of all residents, whether GI or higher entrants, graduates, or those who left the program before completion, was accomplished by standard techniques and is as accurate as possible.

Background Description

Hennepin County Medical Center is a 475 bed, acute care, metropolitan county hospital, fully affiliated with the University of Minnesota. There are 150 beds designated to internal medicine, all of which are general internal medicine beds — although about 40 are intensive care beds: coronary, respiratory, general medicine, and detoxification — except for a 17 bed acute renal medicine dialysis unit. An ample ambulatory care facility is juxtaposed to the in-patient beds and departmental offices.

There were 27 full-time departmental faculty, 57 residents, 16 in each of the first three years and nine at the G4 level. Fellows rotate in the various sections from time to time.

Results

Applicants/Positions

Table 1 shows our results from 1970-1977. All positions were filled (by American graduates) each year. The number of positions increased from 6-16, a factor of 2.67. The number of applicants soared from 110-407, a factor of 3.7. The number of applicants ranked has paralleled the number applying and increased from 104-375, a factor of 3.6.

FMGs

Although not all "X'd" candidates were FMGs, most were. Therefore, if we assume that 100% of "X'd" applicants were FMGs, all those ranked, with

TABLE 1
First Year Residency Matching Statistics

	1970	1971	1972	1973	1974	1975†	1976	1977
No. of positions (all filled)	6	12	12	12	12	15	16	16
No. of applicants	110	136	202	243	296	330	331	407
No. "X'd"	6	3	13	8	18	62	33	32
No. ranked	104	133	192*	235	278	268	298	375
No. U.S. applicants ranked	104	132	191	230	270	268	292	374
% U.S. applicants/all applicants ranked	100	99	99.5	98	98	100	98	99.7
Matching rank range	3-28	2-34	1-37	2-38	4-35	1-61	3-80	2-70
% lowest matched/all applicants ranked	27	26	19	16	13	23	27	19
No. ranked women applicants	4	8	7	12	23	31	38	67
% ranked women/all applicants ranked	4	6	4	5	8	12	13	18
No. women matched	0	0	0	0	0	2	2	5
% women matched/ranked women applicants	0	0	0	0	0†	6	5	8
No. ranked University applicants	36	56	67	63	98	61	61	71
No. matched University applicants	5	5	9	8	8	8	4	7
% matched University/ranked University applicants	14	9	13	13	8	13	7	10
% matched University applicants/positions offered	83	42	75	67	67	53	25	44
No. U.S. schools applying	33	34	41	50	55	64‡	69	82
No. schools applying	37	38	45	64	74	84‡	105	83
No. schools ranked	33	34	39	56	54	64‡§	69§	83
No. schools matched	2	6	4	3	4	6	13	9
% schools matched/ranked	6	18	10	5	9	9‡	19	11

*3 applicants added when corrected NRMP print-out received.

†2 women are now in program from that year's pool; applied as G1's, but entered as G2's.

‡Incomplete data on total no. applicants and schools in 1975.

§Add 1 and 4 "schools", respectively to 1975 and 1976; these candidates were officially coded as "out-of-school" applicants.

rare exception, were American graduates. The number of FMG applicants has approximately halved and stabilized in 1976 and 1977, while the percentage decreased towards those in the early part of the period.

Matching Range

Our first-matched applicant has always been among our first four ranked. Our matching range was relatively narrow during the first five years: the lowest matched was at the 38th position in 1973. Since our applicant number increased, we kept "doing better in the match," reducing our percent placement of lowest matched: total applicants from 27 to 13%. During the last three years, it appears as though we "did worse" since our lowest matched varied from 61st to 80th, even though the applicant pool expanded by a third from 1974 to 1977 (*vide infra*).

Women Applicants/Residents

The number and percentage of women applicants has steadily increased. During the last biennium, the percentage of women admitted to and graduating from U.S. medical schools is roughly 25 and 15%, respectively; our data, therefore, to some extent, roughly reflect national trends. Although we matched with nine women the last three years, 11 women occupy 57 positions. Two current G4 women applied in 1974 for G1 positions but were entered as G2s in 1975. We keep no data on racial minority group applicants.

U. of M. Applicants

Of 101 total positions offered during the period, Minnesota students matched with 54% of them. However, there is a definite trend downward in the second half of the period compared to the first: our University applicants matched with 65% of positions 1970-1974 and only 40% since. An increase in graduating class size accounts for the increase in University applicants from 1970 to 1971. The peak at 98 University applicants in 1974 is not explainable. Otherwise, the number has remained in a narrow range of 56-71. This represents a decreasing contribution to the total applicant pool which has expanded in numbers and distribution (*vide infra*).

Non U of M Applicants

The difference between the total schools ranked and applying is almost solely due to FMG schools. Only about 17 "schools" (actually school categories) are represented over the period which are non-U.S., non-"FMG schools": Canadian, "out-of-school", and "5th pathway" (in NRMP jargon).

Although it took from 1970-75 for the number of applying schools to double, they have increased a

mean of another 23% the last three years. In terms of ranked schools, it took six years to double the number, but has increased by 28% during the last biennium.

As can be seen from Table 2, during the first half of the period, most of those non-U of M matched candidates were from schools in this part of the country. During the last three year applicant boom, due especially to non-U of M candidates, the distribution of matched applicant schools has been much wider and is no longer limited to upper midwestern and plains states' schools.

TABLE 2

Distribution of Matched G1 Applicants' Schools

1970 - Minnesota 5; Iowa 1
1971 - Minnesota 5; Iowa 3; 1 each: Wisconsin, Tulane, West Virginia, Indiana
1972 - Minnesota 9; 1 each: Iowa, Oregon, Colorado
1973 - Minnesota 8; Iowa 3; Wisconsin 1
1974 - Minnesota 8; Case Western 2; 1 each: Iowa, Wisconsin
1975 - Minnesota 8; Northwestern 3; 1 each: Stanford, Nebraska, Wayne State, Maryland
1976 - Minnesota 4; 1 each: Iowa, Northwestern, Stanford, Nebraska, West Virginia, Indiana, Vanderbilt, Michigan, Mayo, State University of New York at Buffalo, Boston, University of California at San Francisco
1977 - Minnesota 7; Emory 2; 1 each: Wisconsin Northwestern, University of California at San Francisco, Tufts, Loyola, Harvard, Medical College of Wisconsin

Table 3 displays the applicants' schools of origin when grouped by region, as (arbitrarily) defined in the Table. It also indicates the states contained in the defined region and the total number of medical schools representing those states at the time of the 1977 match. The number and percentage of applicants' schools are listed for each region annually. When these data were further analyzed, some generalizations could be made regarding changes in applicants' schools of distribution: decreases in applicants were registered from only the northwest, mountain, and central plains regions, especially Colorado and Oregon; increases in applicants occurred from the east, west, northeast, border and southern regions, especially from Chicago, California, New England, New York, Detroit, and the border state schools.

Resident Follow-up

The Figure diagrammatically shows the distribution of all 193 residents who are, or have at one time, been an HCMC resident from 1965-1977. (We chose to add the first five years of our medical residency program since most of the residents during the last four years are still in training). Table 4 demonstrates some of the selected distribution data and concentrates heavily upon those in practice: internal medicine versus non-internal

PRIMARY CARE INTERNAL MEDICINE RESIDENCY AT HCMC — LEONARD

TABLE 3
G1 Applicant Schools of Origin, by Region, 1970-1977

Year/No. of Applicants	1970/110	1971/136	1972/202	1973/243	1974/296	1975/330	1976/331	1977/407
REGION (# of '77 schools)								
WEST (11) (Cal., Haw., Oreg., Wash.)	17(15.5)*	4(2.9)	27(13.4)	18(7.3)	23(7.8)	22(6.7)	16(4.8)	30(7.4)
MTN./SW. (5) (Ariz., Colo., Nev., N.M., Utah)	5(4.5)	7(5.1)	8(4.0)	12(4.9)	6(2.0)	3(0.9)	9(2.7)	9(2.2)
SOUTH (23) (Ala., Ark., Fla., Ga., La., Miss., N.C., Ok., S.C., Tx.)	3(2.7)	5(3.7)	7(3.5)	6(2.5)	11(3.7)	4(1.2)	15(4.5)	12(3.0)
UPPER MIDWEST (6) (Minn., N.D., S.D., Wisc.)	41(37.2)	67(49.3)	72(29.6)	85(35.0)	114(38.5)	78(23.6)	97(29.3)	118(29.0)
CENTRAL PLAINS (8) (Iowa, Kan., Mo., Neb.)	7(6.4)	17(12.5)	27(13.4)	36(14.8)	32(10.8)	28(8.5)	27(8.2)	32(7.9)
MIDWEST (17) (Ill., Ind., Mich., Iowa)	22(20)	18(13.2)	37(18.3)	38(15.6)	46(15.5)	73(22.1)	72(21.8)	94(20.6)
BORDER SOUTH (14) (D.C., Ky., MD., Tn., Va., W.Va.)	3(2.7)	8(5.9)	5(2.5)	4(1.7)	10(3.4)	6(1.8)	20(6.0)	18(4.4)
EAST (21) (N.J., N.Y., Pa.)	5(4.5)	5(3.7)	8(4.0)	19(7.8)	18(6.1)	28(8.5)	22(6.7)	34(8.4)
NEW ENGLAND (9) (Conn., Mass., N.H., R.I., Vt.)	2(1.8)	1(0.7)	6(3.0)	10(4.1)	16(5.4)	14(4.2)	18(5.4)	27(6.6)
NON-U.S. SCHOOLS (6 Categories)	5(4.5)	4(2.9)	5(2.5)	15(6.2)	19(6.4)	21(6.4)	35(10.6)	33(8.1)

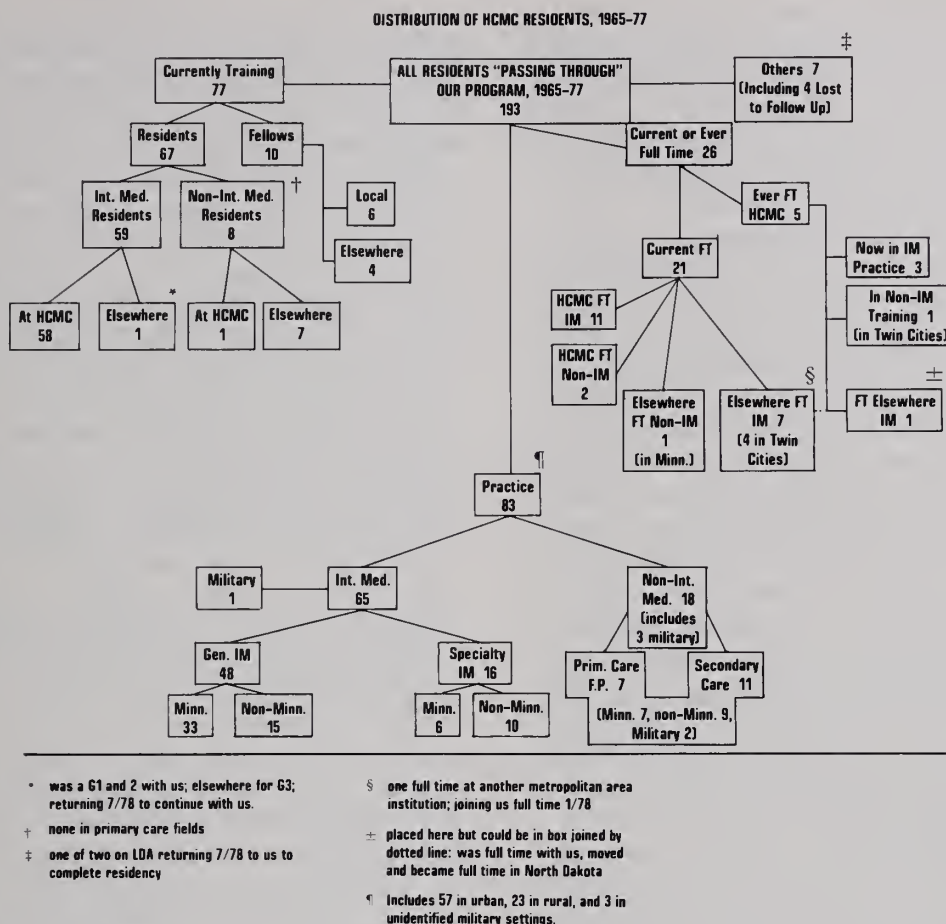
*Represents percentages.

TABLE 4
Percentage Distribution of Selected HCMC Residents, 1965-77

Category	Number	Percent
Total in Study	193	100.0
Still in Training, Total	77/193	39.9
Still in Training, as Fellows	10/77	12.9
Remainder When Total in Training Subtracted	116	—
Full Time Medicine	26/116	22.4
Internal Medicine	22/26	84.6
"Other" Category (includes former resident returning 7/78)	7/193	3.6
Lost to Follow Up	4/193	2.1
In Practice	83/116	71.6
In Practice of Internal Medicine	65/83	78.3
Practice of General Internal Medicine (excluding military)	48/64	75.0
Practicing Primary Care Fields	56/83	67.5
Urban* Practices (excluding 3 military with unknown locales)	57/80	71.3
Urban General Internal Medicine	32/48	66.7
Urban Specialty Internal Medicine	15/16	93.8
Urban, Internal Medicine, Minnesotans	29/39	74.4
Urban, General Internal Medicine, Minnesotans	23/33	69.7
Urban, Specialty Internal Medicine, Minnesotans	6/6	100.0
Urban, Internal Medicine, Non-Minnesotans	18/25	72.0
Urban, General Internal Medicine, Non-Minnesotans	9/15	60.0
Urban, Specialty Internal Medicine, Non-Minnesotans	9/10	90.0
Urban, All Internal Medicine (excluding 1 military)	47/64	73.4
Urban, All Non-Internal Medicine (excluding 2 military)	10/16	62.5
Urban, Minnesotans	5/7	71.4
Urban, Non-Minnesotans	5/9	55.6

*Defined as standard metropolitan areas — or areas associated with them — of 50,000 or more where 75% employment is non-agricultural. (National Geographic Atlas of the World, 4th Edition, G. Grosvenor, Editor, National Geographic Society, Wash. D.C., 1975)

PRIMARY CARE INTERNAL MEDICINE RESIDENCY AT HCMC — LEONARD



Figure

medicine, general internal medicine versus specialty internal medicine, urban versus rural practice, and Minnesotans versus non-Minnesotans.

Seventy-seven (39.9%) of our residents are still in training, about 13% in fellowships. This leaves 116 others, 26 of whom (22.4%) are in full-time academic medicine. Twenty-two of these (89.6%) are in full-time academic internal medicine. Seven (3.6%) belong to an "Other Category", which also includes a former resident returning to complete training in 1977, and four (2.1%) who were lost to follow up.

Subtracting three military physicians whose exact locale is unknown, 57 of 80 (71.3%) have urban practices. Of the 64 in internal medicine, 47 (73.4%) have urban practices, and 10 of 16 in non-internal medicine fields (62.5%) have urban practices. Two-thirds of those in general internal medicine practice in urban areas as do 94% in specialty internal medicine. Approximately the same percent, 74.4 and 72, Minnesotans and non-Minnesotans, respectively, practice internal medicine in urban settings. This

similarity occurs for Minnesotans and non-Minnesotans who practice general and specialty internal medicine.

Finally, of the 83 former residents in practice, 78.3% practice internal medicine and 75% of those practice general internal medicine. When we add to these 48 practicing general internal medicine the seven residents now in family practice and one practicing general medicine in the military, we find that 67.5% of the 83 who went into practice are delivering primary health care, excluding those certified by their specialty boards who consider their practice at least 50% specialty internal medicine.

Discussion

Superficially, the above described results would seem to be of use only internally. However, the kinds of data collected and analyzed may be useful not only to us and how we compare with others, but also to other similar programs and to national organizations (NRMP, AAMC, ABIM) to identify trends in filling

primary care general internal medicine training positions. They may obtain valuable predictive information analogous to that of monitoring certain indicator precincts by media and pollsters in national elections. These organizations could identify yearly, unexpected trends and reconcile differences that might have otherwise remained unexplained.

The new direction HCMC's program has taken has been influenced by both external and internal changes, enumerated earlier. It would be ludicrous to attribute these favorable (as judged by faculty and residents) changes to any one factor. It is also impossible for us to compare our program with other similar county institutions since we are not privy to their information. During the eight years, our positions offered have practically tripled while the applicant pool, and those ranked, have almost quadrupled. Almost 100% of those ranked were American graduates. American graduates of foreign schools may begin to enlarge the applicant pool shortly under currently planned, but not clearly worked-out, legislation. With the recently reported academic achievements of these candidates,¹ one can only speculate as to their ranking placement by complying programs under the current law, as well as the further, time-consuming commiserations of faculty selection committees.

Our early matching range was narrow and perceived as quite good by our faculty. When the applicant pool surpassed 300 and then 400 last year, our matching range increased, lowering to 80th in 1976. Even though 76 more candidates applied in 1977, our lowest ranked match moved "up" to 70th. Our faculty revised its perceptions of "quite good" during the last three years, not based on any rationalizations, but upon the credentials of the first 125 applicants, which we viewed as excellent and nearly equatable.

More women are applying and we are matching with more women applicants. Internally, we have some evidence of a favorable faculty bias towards this cohort. For example, during the last biennium, women comprised 13-18% of total applicants, yet they constitute 20-25% of our first 100 "matchable" positions. Additionally, of course, another reason for matching with 20% women in 1976 and 1977 could be the way these applicants viewed our program.

Our most interesting and complex information involves our University applicants. In 1971, prior increased admissions were first reflected in increased graduates and applicants. However, except for the unexplained peak in 1974, the number admitted and graduating has increased only slightly and been paralleled by the number applying, which has been relatively stable. This results in our own graduates

comprising a decreasing percentage of applicants. Internally, this represents not a particularly negative bias towards our own graduates, but a more favorable one towards non-University applicants. School distribution analysis during the early period shows most candidates were from this area of the country. During the last three years, when applications markedly increased, due especially to non-University candidates, school distribution has been much wider and is no longer limited to a majority of upper midwest and plains states graduates. Some reasons for this may be:

1. A purposeful shift in our faculty's desire to become less "inbred" in our residency program.
2. More applicants and applications per applicant throughout the country due to shrinkage of available accredited primary care internal medicine positions.
3. An increase in the program's reputation nationally.
4. The latter implicitly perceived by our own graduates as a more highly competitive program resulting in only more highly competitive University graduates applying.
5. We should not dismiss the quality of life in Minneapolis and Minnesota as may be perceived especially by candidates from New England, the East Coast, large industrial midwest cities, the South and Border South.

It would, of course, please us most if we knew our program's reputation had become more competitive nationally and was thus being sought after by more highly competitive students from schools throughout the country. I believe our data support this, at least in part. Also, although our new facility may appear to have been contributory, we didn't occupy it until May, 1976: five months *after* the NRMP dead-line, two months *after* the match, and six weeks *before* our GIs began. Other data supporting a changing program direction and orientation are that we matched with applicants from only nine different schools the first five years and 25 for the entire period. Further support includes achievement of academic excellence (which continues to increase) by our matched candidates in terms of group means of high-grade equivalents (A's, O's, Honor grades, 90's, etc.), Board scores, and national medical honor society membership. According to faculty evaluation, this has not been accomplished at the expense of humanism expected in residents of a primary care general internal medicine residency program.

Finally, interpretations of resident outcome in terms of practice type and location are necessary. Since this information is not kept prospectively, some of the data resulted in surprises for us. First, only about 2% of the total number were unable to be traced. Second, 22% of those not still in training have become full-time academicians. This is a rather large total, especially for an acute care, county general hospital. Of those 26 who were or are full-time faculty, one each is in psychiatry,

pathology, and ophthalmology, and the other, who was a cardiologist with us, is now in a radiology residency training program. There were two nephrologists on our staff, one of whom is now in practice, and the other in full-time nephrology in a neighboring state. Two others who were in full-time infectious disease and gastroenterology are, respectively, now in general internal medicine and gastroenterology practice in the southwest. We have currently retained 11 graduates on our faculty, five of whom are nephrologists, likely due to the Regional Kidney Disease Program fellowships and large dialysis center. We have also trained and retained two rheumatologists, and one each in cardiology, infectious disease, hematology, and endocrinology. Other academic institutions have received from us three nephrologists and one each in hematology, gastroenterology, oncology, clinical pharmacology, and general internal medicine.

Seventy-two percent of those who once trained here are in practice, almost 80% of whom are in internal medicine, with three-fourths of those in general internal medicine, of whom two-thirds are in primary care.

About 70% practice in urban areas: two-thirds of those who practice general internal medicine and almost 95% of those who practice specialty internal medicine. The latter figure is not surprising in that most rural areas would not have need for these services. There appears to be little difference in practice setting between those who settled in Minnesota or outside of Minnesota. Due to the preponderance of rural family practitioners, only 10 of 16 (62.5%) non-internists practice in an urban setting.

Most of our graduates deliver primary health care, irrespective of post-graduate fellowship training, which, therefore, should not be used alone by any agency as an indicator of specialization. Our results are in sharp contra-distinction to those just reported by Massachusetts² where only 28% of graduates of internal medicine programs were delivering primary care and 55% were specializing. Although internal medicine residency graduates of Massachusetts and our institution have both satisfied PL94-484 in terms of establishing and filling certain percentages of first year primary care positions, actual practice outcomes are not taken into account by this law. Large outcome differences are evident and funding support based solely on "intake" and not "output" may lead to inequities.

Summary and Conclusions

1. Between 1970-1977 at this county institution, the

number of first year primary care internal medicine positions has increased from six to 16, while the number of applicants rose from 110 to 407.

2. All positions filled annually with American graduates; 95% of applicants were ranked, almost 100% of whom were American graduates.
3. Women now comprise nearly 20% of all ranked applicants and current residents. During the last few years, about 25% of our "matchable" positions have been assigned to women. No data on other minorities have been kept.
4. Schools of applicants and matched residents have become more widely distributed during the latter half of the period with more representation from both coasts, New England, southern and border states, and large industrialized midwestern cities; decreased representation has occurred from mountain and northwestern states, and interestingly, from our own region.
5. Academic attainments of candidates have continuously improved and matching at a higher number (i.e., lower on the list) may not indicate diminishing performance.
6. The latter two characteristics have been interpreted as an increase in national reputation of the program; according to faculty evaluation, this has not been at the expense of humanism in our residents.
7. Less applicants will be from the FMG pool in the future while more may represent foreign trained Americans.
8. Increasing applicant numbers are putting excessive stresses on faculty time in interviewing (85-90% of candidates) and evaluation; this equates to about 0.5 full-time faculty position.
9. Follow-up was accomplished on all but 4/193 residents since 1965. Of the 116 who have completed training: 22% are in full-time academic medicine; 72% are in practices; 78% of these practice internal medicine; 75% of these practice general internal medicine; two-thirds of all those in practice deliver primary care; urban: rural practice setting ratio is 2:1; although we have become major importers of those interested in primary care internal medicine, nearly 40% of graduates practice outside of Minnesota; yet, there are not striking demographic differences between those practicing here or elsewhere.
10. Perhaps sharing applicant characteristics, not just data generated by NRMP lists, between similar programs and institutions would be more productive for them and national graduate medical

education policy-making bodies.

11. Because this sharing is not current, we cannot compare our results with other county hospital primary care general internal medicine programs; but, analysis of our results does not allow us to consider ourselves the prototype of "county hospital" residencies of past years.

12. Although our current aims for resident outcome will undergo continuous refinement, our general purpose has been successful; alteration will likely be due only to unpredictable external influences probably in the area of funding and externally directed selection.

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Physicians in the News

Merle Loken, M.D., Minneapolis, was elected President of the Society of Nuclear Medicine.

Robert D. Christensen, M.D., Shakopee, has accepted the chairmanship of the MMA Interspecialty Council. A member of the Board of Trustees, Dr. Christensen succeeds Dr. Delwin K. Ohrt, Mankato, elected MMA Board Chairman in May.

Dr. Roy House, Rochester, and **Dr. Joseph Horozaniecki**, Prior Lake, were appointed to the state Poison Information Advisory Council by State Health Commissioner George Pettersen, M.D.

The American Academy of Family Physicians dedicated the Huffington Memorial Library on August 14, 1982 in Kansas City, Missouri. The library is named in memory of Dr. Herbert L. Huffington of Waterville, Minnesota. At the time of his death in 1976, Dr. Huffington was the president-elect of the American Academy of Family Physicians.

Minnesota Advisory Task Force on Epilepsy Survey

Primary care physicians and psychiatrists in Minnesota will receive a survey in the near future from the Minnesota Advisory Task Force on Epilepsy. The purpose of this survey is to collect information on the delivery of health care to persons with epilepsy. The survey has been endorsed by the Minnesota Medical Association. Your prompt response is encouraged so that the information collected is accurate.

Twin Cities — The Highest Incidence of Prostatic Cancer in the Nation

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Prostatic cancer represents the leading malignant disease among the male population in the Twin Cities. Lung cancer is the leading malignancy among males in the United States. The reason for the high incidence is not known. The medical community in our area should be aware of this surprising fact and should have the necessary knowledge for early diagnosis and treatment of this disease. Basic epidemiologic data, diagnostic tests, therapeutic alternatives and the controversies involving prostatic cancer are discussed. Also, the research activity concerning prostatic cancer currently underway at our institution is briefly presented.

FOR 1980 IT WAS estimated that about 66,000 new cases of prostatic cancer (CAP) would be diagnosed, and the death rate for the United States would total 21,500. This high death rate would be exceeded among men only by cancer of the lung and of the colon and rectum. In the atlas of cancer mortality, which provides age-adjusted mortality rates for white males by counties for the 20 year period 1950-1969 the upper midwest states of Minnesota and Iowa had an apparent excess of prostatic cancer mortality. The survey showed a range of prostatic cancer rates from a low of 37 per 100,000 males in Pittsburgh to the highest of 54 per 100,000 in Minneapolis-St. Paul.¹ The cancer of leading incidence among males in the United States is lung cancer. Nevertheless, cancer of the prostate exceeds that site in incidence in the Twin Cities area. Prostatic cancer is almost twice as frequent in the black population. The finding is even more provocative due to the fact that the black population is percentage-wise smaller in the Twin Cities than is the national average: 11.7% nationally vs. 2.28% locally.² Table 1 displays the rank order and incidence of most frequent cancers in the Twin Cities and nationally.³ The reason for the high incidence in the Twin Cities is not clear. Therefore, it is especially important for the physicians in our community to know the basic facts about prostatic cancer, its signs, symptoms, therapeutic possibilities, prognosis and controversies.

Epidemiology

The mortality rate for cancer of the prostate

increases markedly with age after about the fiftieth year. For prostatic cancer, a substantial but undetermined proportion of the disease is latent and only incidentally discovered at autopsy or when surgical intervention is undertaken for other reasons.

Religion has proven to be a useful characteristic to measure in many epidemiologic studies since it is frequently a good indicator of sexual practices, fertility, dietary habits, smoking, alcohol use and circumcision. Investigation in New York City indicated that Jewish males have a slightly lower risk for the disease.^{4,5} It was postulated that circumcision might be protective. A later study, however, did not

TABLE 1

Rank Order of Cancers* in Minneapolis-St. Paul SMSA Newly Diagnosed in Residents By Sex, Site and Average Annual Age-Adjusted Incidence Rates 1969-1971 (adjusted to 1970 U.S. Population)

	Males			
	Minneapolis-St. Paul		All areas	
	Rank	Incidence †	Rank	Incidence
Prostate	1	69.9	2	60.8
Lung & bronchus	2	63.6	1	72.0
Colon	3	39.9	3	32.9
Bladder	4	22.4	4	22.5
Rectum	5	20.1	5	17.5
Hodgkin's & other lymphomas	6	17.7	6	15.8
Stomach	7	16.1	7	15.1
Leukemias	8	14.3	8	12.7
Pancreas	9	12.8	9	12.6
Kidney	10	9.5	11	7.6
Larynx	11	7.6	10	8.1

*Exclusive of Skin Cancers and Carcinoma In Situ
†Per 100,000 Population

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confirm a difference in circumcision status between cases of prostatic cancer and controls.⁶ The national mortality data for the period 1959 to 1961 revealed a gradient from the lowest risk of death from prostatic cancer for single men, increasing for married, widowed and divorced men, respectively.⁷ Again, another case control study involving several hundred men with prostatic cancer showed no relationship between the disease and marital status, age at first marriage, or number of children.⁶ Some studies suggest that increased sexual activity is associated with increased risk for prostate cancer. The relationship of benign prostatic hypertrophy to prostatic cancer remains unsolved.⁸

Hormonal factors are involved in the etiology of BPH and in the development of prostatic cancer as well. Eunuchs have atrophic prostates and very likely do not develop prostatic cancer.⁹ Also, autopsy studies have shown the frequency of occult prostatic carcinoma in men dying of non-prostatic disease to be lower in men with evidence of hepatic cirrhosis.^{10,11} We can speculate that increased levels of estrogen in cirrhotic patients can provide protective effect against prostatic cancer. To date, there is no report available which could document different hormonal levels in white or black males, or Japanese or Caucasian American, despite the fact that they do have significantly different incidences of prostatic cancer.

Despite the unusually high proportion of prostatic cancer in our area, few analytic epidemiologic studies entertaining specific hypotheses and based on incident cases have been initiated. The only local epidemiologic study of prostatic cancer, performed by Schuman et al.¹² revealed certain correlation between sexual activity and prostatic cancer. Patients with prostatic cancer appear to have had higher fertility and more prostatic cancer in blood relatives than controls. The study was conducted on two hundred white patients with prostatic cancer from major hospitals in the Metropolitan area. The study displayed support for the hypothesis that promiscuous sexual activity and venereal disease might be implicated in the incidence of prostatic cancer. Also, they found that antibody titrations for herpes virus and cytomegalic virus, although currently not revealing striking disparities in positivity, tend to show higher titers among the cancer cases. At the present time there is ongoing research by Schuman et al.¹² to collect data which might shed some light on the correlation of breast cancer among the female blood relatives and patients with prostatic cancer to see if the common genetic or environmental factors exist for two hormone-dependent cancers.

Diagnosis

For diagnostic purposes the rectal digital exam is probably still the most important single test to be used as an initial diagnostic procedure. As a screening procedure it does not have high predictive value. It is too often negative in asymptomatic patients. Nevertheless, it is a good test in symptomatic patients who do have a micturition disorder. The tumor marker acid phosphatase can still further delineate the extent of the extra-prostatic disease. Needle biopsy is the necessary procedure to definitively settle the diagnostic dilemma. Approximately 10% of patients undergoing prostatectomy for presumed benign hyperplasia have prostatic carcinoma on histologic examination of the surgical specimen.^{13,14}

In order to define the prostatic cancer, usually two parameters are of crucial importance. The clinical staging implying the urological work-up is probably the most important prognostic parameter (Table 2). Complete staging requires rectal examination, histologic analysis of the biopsy and/or surgical specimen, radioisotopic bone scanning, serum acid phosphatase assay, and analysis of the pelvic lymph nodes. In a few cases, staging accuracy can be improved by abdominal and pelvic CT scan, bipedal lymphangiography and in some cases even by sonography.

TABLE 2

Stage	Cancerous Tissue
A ₁	Focal, incidental finding
A ₂	Diffuse, incidental finding
B ₁	Small, discrete nodule, confined to prostate
B ₂	Large or multiple nodules or areas, confined to prostate
C ₁	No involvement of seminal vesicles, < 70 gm localized to periprostatic area
C ₂	Involvement of seminal vesicles, > 70 gm, localized to periprostatic area
D ₁	Pelvic lymph node metastases or ureteral obstruction causing hydronephrosis
D ₂	Bone or distant lymph node or organ or soft tissue metastases

Histologic grades of prostatic cancer modified by Gaeta et al.¹⁵ is presented in Table 3. Regarding the grading, poorly differentiated tumors have been found to behave in a more aggressive manner than better differentiated tumors.¹⁶ Combination of staging and grading of the disease is used in Gleason's¹⁷ classification of the disease. He proposed a five-grade scheme which is assigned to both the major and the minor histologic patterns seen at low magnification. Gleason's grades are summed to give pattern scores ranging from two to 10, which correlate the best with patient's prognosis and survival.¹⁷

In its early stages, the patient with prostatic cancer might be completely symptom free. Very frequently the patient is referred to a urologist due to some abnormality found on rectal exam. Later he develops symptoms of micturition, obstruction or bone pain. Hematuria, lower extremity edema and lymphadenopathy are less common presenting symptoms of prostatic carcinoma.

Acid phosphatase is the only presently available tumor marker in patients with prostatic cancer. Recent studies have shown that the colorimetric enzymatic method of determining acid phosphatase is as useful as the immunochemical methods in staging of patients with prostatic cancer. Radionuclide bone scan is significantly more sensitive than the skeletal radiograph in detecting early metastatic prostatic carcinoma. The reported incidence of patients having bone scans with positive findings and normal skeletal surveys ranges from 12% to 50%. Less than 2% of patients with radiographic evidence of metastasis have bone scans with negative findings.^{18,19} Although the bone scan is more sensitive than the radiograph, it is less specific. Nuclide scanning reveals all metabolically active bone lesions, including Paget's disease, osteomyelitis, arthritis and healing fractures.²⁰ Because of its better sensitivity, the bone scan should be performed before the skeletal survey.

The published data would support the contention that approximately 25% of patients with normal serum acid phosphatase levels and negative isotope bone scans who have a disease confined to the prostate on rectal examination will have lymphatic extension identified by pelvic lymphadenectomy.^{21,22}

Unfortunately, the biochemical tests which would detect the cancer when still localized to the gland are not yet available. Sonography and computerized

tomography are being introduced more frequently in the study of prostatic cancer, and probably in the near future will offer the possibility of detecting occult tumor.

Therapeutic Alternatives

There is no curative treatment for patients with widespread bone or visceral metastases. At the present time hormonal manipulation and/or chemotherapy can provide palliation only.

Stage A₁, so called "pathologist cancer" is usually cured with simple open or transurethral removal of the prostate. There is no uniform treatment for the management of patients with Stages A₂, B or C disease. Patients with microscopic small palpable tumors (stages A₂ and B) without lymph node metastases can be treated by radical prostatectomy,^{23,24} external beam radiation therapy²⁵ or implantation of radioactive seeds which can be used alone²⁶ or in combination with external beam radiation therapy.²⁷ The best method to treat localized prostatic cancer is not developed yet. It seems, however, that radical retropubic prostatectomy might have a slight advantage over other methods.²⁸ The urologist and the patient should select the treatment which is best suited to the particular patient's needs.

It is difficult to compare different therapeutic modalities from different authors, because the stages of the disease are different. Nevertheless, some series with a significant number of patients are interesting to mention. When treating small B lesions with total prostatectomy, Correa et al.²⁹ reported 5, 10 and 15 year overall survival rates of 92%, 79% and 62%, respectively. The procedure was, unfortunately, applicable to only 6.9% of 968 patients over a 20-year period. Ray and Bagshaw³⁰ reported results in 430

TABLE 3
Histologic Grades of Prostatic Cancer*
(modified from Gaeta et al¹⁵)

Grade	Glands	Cells
I	Well defined and separated by scant stroma	Uniform and normal size; nucleoli not conspicuous, chromatin dark and dense
II	Medium and small, scattered and infiltrating prostatic stroma	Slightly pleomorphic; nucleoli conspicuous and small
III	Small, irregular or poorly formed acini combined with areas devoid of organization	Significant pleomorphism; nuclei vesicular and show large, often acidophilic nucleoli
IV	Round and solid masses of cells or diffuse infiltration of small cells with no glands	Small or large, uniform or pleomorphic with significant mitotic activity (≥ 3 per high-power field)

*Lesions are assigned to maximum grade according to glands, cells or both

patients treated with external beam radiation for curative purposes. The five and ten year actuarial survival rates were 71% and 45%, respectively, for the 230 patients with stage B tumors; 41% and 31% were comparative figures for 200 patients with stage C disease. Results with implantation of radioactive seeds were comparable²⁶ to those obtained with external beam radiation. Radical extirpative surgery including extracapsular prostatectomy, and removal of the seminal vesicles, and distal part of the vases and the urethra above the urogenital diaphragm is performed at our institution for stage A₂, B₁, B₂ and sometimes stage C.

Hormonal therapy is only palliative. Prostatic cancer patients finally die of the disease, unless they succumb to the cardiovascular complications.³¹ In our hospital we use either 3mg of DES a day or bilateral orchiectomy. At the present time, the question of when hormonal treatment should start, early or late, is not yet answered. Approximately 80% of prostatic cancer patients treated hormonally, either with bilateral orchiectomy or with estrogen, respond either with regression of the tumor or with relief of symptoms.³² Symptomatic relief is primarily manifested subjectively as a relief of pain and micturition problems; occasionally measurable response is produced as softening of the prostate and decrease in cancer size; also bony metastases can display a regression in size of the lesions.³³

In a number of small clinical trials the use of antiandrogens has been proposed, but to date they do not offer any therapeutic advantage over simple castration.³⁴ Orchiectomy sometimes produces dramatic effects on ureteral obstruction which does occur in 10% of patients treated for prostatic carcinoma.³⁵ Bilateral orchiectomy lowers plasma testosterone levels from approximately 500ng/100ml to 50ng/100ml.³⁶ Patients who respond favorably to therapy have a significantly better survival rate than do non-responders. When a patient has a relapse after endocrine therapy, neither adrenalectomy nor hypophysectomy³⁷ proves an effective means of palliation.

Unfortunately, chemotherapy of prostatic cancer is not very effective. The National Prostatic Cancer Project has been quite adequately evaluating single drugs, but so far a very efficient chemotherapeutic medication has not yet emerged. The main reason is probably the biological nature of prostatic cancer. It is a relatively slow growing tumor and as such is not well suited for cytotoxic chemotherapy, because only a small proportion of cells are dividing at any one time. Nevertheless, chemotherapy of cancer of the prostate

seems promising and is now used for patients who have relapsed after conventional treatment.^{38,39} Cryotherapy and subsequent therapeutic immunologic response has been advocated for some time, but the cumulative experience with this modality has revealed a high incidence of morbidity and neither immunologic stimulation nor objective regression of distant metastases have been demonstrated.⁴⁰

Pelvic lymphadenectomy is currently used as a staging procedure and as a definitive treatment of lymph node metastases.^{41,42,43,44} The therapeutic use of lymphadenectomy still represents a controversial issue.

Our Research

It is standard practice that the determinations of steroid hormone receptor profiles are widely used in making decisions about the treatment of breast cancer.⁴⁵ At Hennepin County Medical Center we are trying to apply the breast diagnostic steroid receptor methodology to the selection of patients for treatment of prostatic cancer. The research at our institution is concentrated in separating the good responders from the poor ones with negligible or negative receptor sites. With this method one could unmask the hormone-insensitive lesions at a stage when some different treatments could be more successfully instituted. In one study,⁴⁶ the receptor positive carcinoma was 73%. This corresponds to the percentage of patients with prostatic cancer clinically responding to hormonal manipulation (about 80%).

We are evolving the qualitative and quantitative methods for steroid receptor profiles on patients with BPH, CAP and on cadavers with normal prostates (18 to 36 years of age). We are currently following 106 patients with prostatic cancer in Hennepin County Medical Center (Table 4). We detect about 30 new patients with prostatic carcinoma every year. In 24 patients we performed steroid receptor profiles based on tissue removed either with needle biopsy, open prostatectomy or TUR. Twelve patients had cancer of the prostate, 11 BPH and one was a normal prostate from a 19-year-old male cadaver. The data obtained

TABLE 4

Stage	Grade
A ₁ (20)	1 (23)
A ₂ (20)	2 (20)
B ₁ (23)	3 (34)
B ₂ (7)	4 (29)
C (19)	—
D (17)	106
—	106

are displayed on Table 5. So far, our preliminary data did not detect a significant difference in the steroid receptor content between benign and malignant glands. Nevertheless, we could see the significant range in steroid receptor content in both groups. For

TABLE 5

	Pts	Estrogen	Testosterone
BPH	12	4.7 ^a	3.
	Range	< 1-13	< 1-11
CAP	11	4.09	3.
	Range	< 1-11	< 1-11
Normal		2	10
Total 24 ^a			

^af-femtomol (10⁻¹⁵mol)

prostatic cancer patients with very low values, the hormonal treatment should probably not be applied and patients could be spared needless orchiectomy, and feminizing and cardiovascular complications of estrogen therapy. This group of patients might benefit from an earlier initiation of chemotherapeutic protocol.

The final conquest of this cancer will undoubtedly require substantial progress in our understanding of this disease. In the Twin Cities area the incidence of prostatic cancer is unusually high. We all need to pay special attention to this growing disease by concentrating our efforts toward early detection and early treatment.

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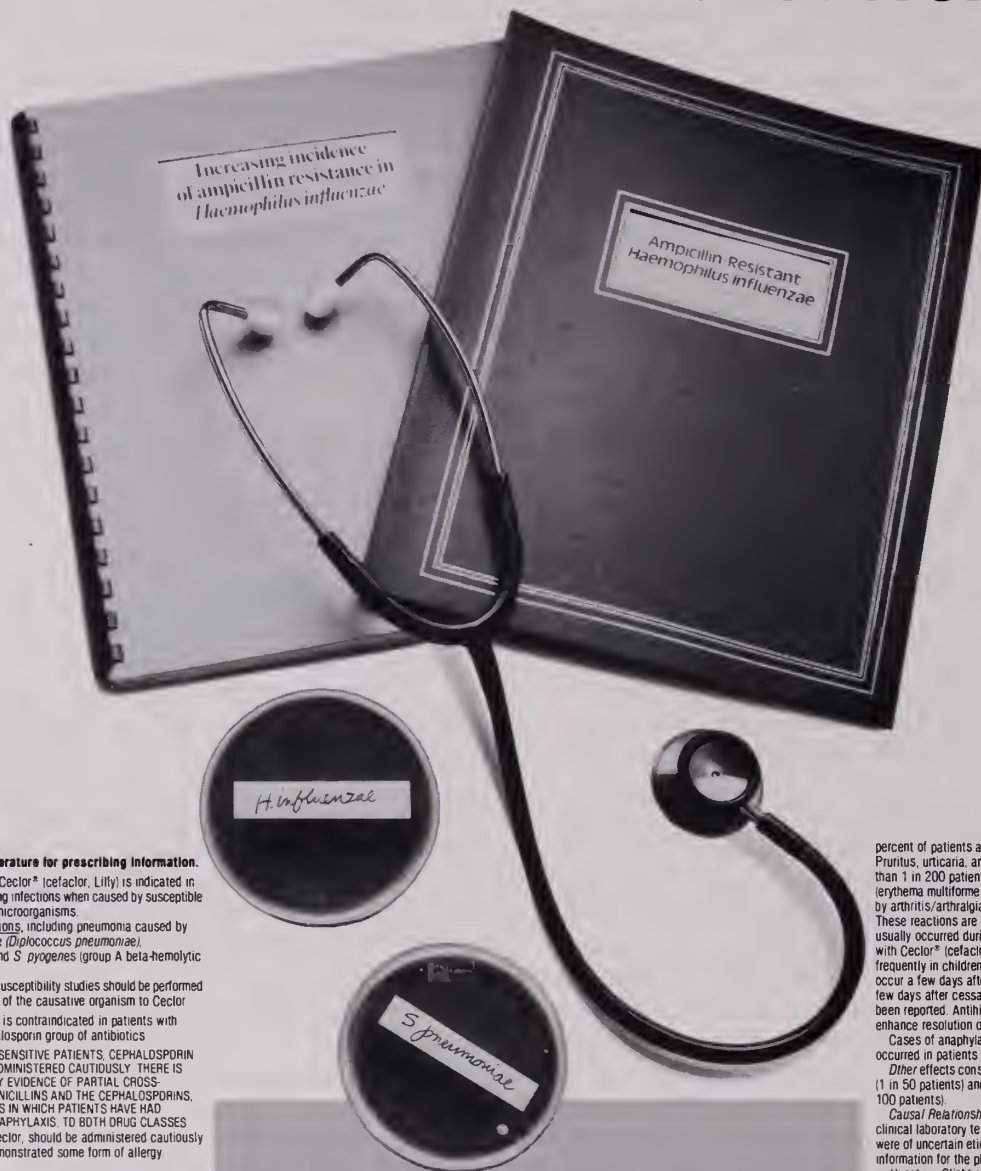
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“Management of New and Old Infectious Problems Seen in Children” will be the topic for the Fargo Clinic's 4th Annual Pediatric Day Seminar, October 16, 1982 at the Fargo Holiday Inn. For details, contact: Medical Education, St. Luke's Hospital, 5th Street North at Mills Avenue, Fargo, ND 58122; (701) 280-5933.

Continuing Medical Education Scientific/Ski Meeting

The Northwestern Medical Association convenes for its 36th Annual Meeting at Sun Valley, ID, from February 7 to 11, 1983. Transplants-implants, general medical subjects, ski-injury prevention, high-altitude physiology and financial planning will be discussed by experts. Approved for 10 CME Category I credits. Registration 3 to 5 p.m. on February 7, Challenger Inn, Sun Valley. Non-members registration \$100. For information, write to Norman Christensen, M.D., 2456 Buhne Street, Eureka, CA 95501 or phone (707) 443-2248.

An added complication... in the treatment of bacterial bronchitis*



Brief Summary. Consult the package literature for prescribing information.

Indications and Usage: Cefclor[®] (cefactor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

Contraindication: Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy particularly to drugs.

Precautions: If an allergic reaction to cefaclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids. Prolonged use of cefaclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest[®] tablets but not with Tes-Tape[®] (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy: Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy: Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefaclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefclor.

Hypersensitivity reactions have been reported in about 1.5

Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefclor.¹⁻⁶

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.⁷

Cefclor[®]

cefactor

Pulvules[®], 250 and 500 mg

percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis, and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefclor[®] (cefactor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain: Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic: Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic: Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal: Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). (1002819)

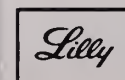
*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285
Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630

Drug Profiles

Nitroglycerin

GEORGE R. BAILIE, BSc MSc MPS*

One of the organic nitrate vasodilators, nitroglycerin has a predominantly venous site of action. Although it is used in the treatment of acute and chronic congestive heart failure, nitroglycerin does not generally induce significant changes in heart rate. It is the second most popular vasodilator in Minnesota, according to statistics on drug use in the Minnesota Medicaid population.

Absorption

Well absorbed from the sublingual mucosa and through the skin. Oral preparations undergo a significant first pass effect. Onset of action from sublingual forms is within seconds to minutes, with a duration of action around 30 minutes. Oral forms exhibit a slow onset of action and extremely variable duration action. Topical preparations have an onset between 15 and 30 minutes with a duration of action up to 8 hours.

Distribution

Upon reaching the systemic circulation the drug is rapidly incorporated into the cells lining the blood vessels, where it exerts its effect on vascular smooth muscle.

Metabolism

It is extensively metabolized in the liver which accounts for the variable affect of the oral dosage forms. The metabolites are thought not to contribute to the therapeutic effects of the drug.

Excretion

Virtually all of the drug is excreted into the urine as inactive metabolite.

Half-life

Extremely short and variable. With rapid incorporation into vascular smooth muscle and extensive metabolism the plasma half-life is usually not considered in dosage adjustments.

Interactions

There will be a potentiation of the drug's effect when used with other vasodilators or alcohol.

Dosage Considerations

Because of its rapid effect and ability to cause hypotension, headache, dizziness and syncope, therapy should be initiated with low doses and gradually increased according to hemodynamic parameters.

Topical application of the 2% ointment is usually initiated with a ½ inch dose. One inch is equal to 12.5mg. It should be spread thinly over a 6 inch by 6 inch area with no massaging or rubbing. Sometimes a plastic wrap is employed over the area for better systemic absorption and to decrease adsorption onto clothing. Usual areas of application are the chest, back and the back of the thighs. Hands should be washed after application for absorption is possible from any area of the body. Before the next application, the old ointment can be washed away from the skin.

Many times poor response is due to poor circulation to the area being used for application and another area may be tried before increasing the dose. This may especially be a problem in elderly patients with poor circulation. Hodge R.H., et al (see reference) found that a 60g tube of nitroglycerin ointment contained 62 one inch and 28 two inch doses. This may be used as a guide to establish if patients are using the correct doses by comparing how long a tube of ointment is lasting a particular patient at a specific dose.

*Pharm D. Resident, College of Pharmacy, University of Minnesota

NITROGLYCERIN

Clinical Comments

Nitroglycerin's principle effect is to dilate the venous, capacitance, vessels. This causes a decrease in left ventricular filling pressures and a reduction in pulmonary vascular congestion. There will also be a decrease in systemic vascular resistance. The drug is often combined with an arteriolar dilator in treatment of congestive heart failure. In critically ill patients it may be prudent to monitor blood gases for some studies have shown a reduction in pO₂ after start of therapy. This is thought to be due to vasodilation of underperfused pulmonary vessels with increased ventilation-perfusion mismatching. Elderly patients, especially those receiving peripheral vasodilators should be cautioned of the occurrence of dizziness and syncope which may occur with combined use. These patients may want to sit for a time after applying, or ingesting their nitroglycerin dose.

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Thomas Peter Garry — 1884-1963 Anatomist, Royal College of Surgeons, Dublin

I am gathering information on my uncle, Tom Garry who was associated as an Anatomist with the Royal College of Surgeons, Dublin, for fifty years. The information will be used to publish a short biography and a 'Garry's Anatomy'.

Tom Garry, who was a very colorful personality, was primarily a teacher of Anatomy with an original and unique approach to his subject.

I would like to hear from any past students, under graduates and post-graduates, who attended his famous Anatomy grind and who may have kept notes of his teaching. Photocopies of material would be appreciated. I would also appreciate hearing from anybody with an interest in this project.

Dr. John Garry
2971 West 28th Avenue
Vancouver, B.C.
V6L 1X3

MINNESOTA MEDICINE Winter Covers

The cover editor would like to solicit photographs for next winter's covers concerning the possible vacation places that many persons travel to from this area. Many Minnesotans vacation out of state during the winter months including such areas as the mountains for skiing, the Caribbean, Florida, the desert states, and possibly Mexico. The editor would like to receive scenic photographs of some of these vacation areas in the hopes that MINNESOTA MEDICINE could have a winter series on some of these areas.

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patients fall asleep faster,
sleep longer and seldom awaken
with morning hangover.

Feeling well rested in the morning usually means having slept well the night before. And for insomniac patients receiving hypnotic therapy, a good morning also means awakening with few side effects from their medication. Many physicians choose Dalmane for their patients who suffer from insomnia for this very reason.

Aside from enabling patients to fall asleep more quickly and sleep longer, Dalmane seldom causes morning hangover. Most Dalmane patients feel alert and refreshed when they awaken. In 53 paired-night clinical studies comparing Dalmane and placebo in 2010 insomniac patients with a variety of secondary diagnoses, most Dalmane patients awakened more alert and refreshed, and less groggy and drowsy, than on nights when they had taken only placebo.¹ In a double-blind crossover study of

42 patients in private practice, approximately three times as many patients reported feeling refreshed and alert upon awakening after a night on Dalmane (flurazepam/Roche) compared to placebo nights.² This difference was highly significant ($p < 0.001$). And a retrospective study of 51 hospitalized patients who received Dalmane revealed a 3.1% incidence of side effects.³

While residual effects from Dalmane therapy are infrequent, patients should be cautioned about drinking alcohol, driving or operating hazardous machinery after ingesting the drug.

Efficacy and safety in a broad range of patient types.

Over 2000 clinical trials involving more than 10,000 patients have shown that Dalmane patients fall asleep sooner, sleep longer and experience fewer nocturnal awakenings.⁴ The safety and efficacy of Dalmane have been demonstrated in medical and surgical hospitalized patients, in patients seen in office practice and in elderly patients.⁵⁻⁸ Since the risk of oversedation, dizziness, con-



on and/or ataxia increases with larger doses in the elderly, it is recommended that the dosage be limited to 15 mg.

Moreover, the efficacy and safety of Dalmane for the treatment of insomnia have been demonstrated in thousands of patients with a variety of primary medical conditions, including cardiovascular, neuropsychiatric, endocrine-metabolic, gastrointestinal, genitourinary, respiratory and musculoskeletal disorders.¹ Dalmane (flurazepam HCl/Roche) is contraindicated in pregnancy and in patients hypersensitive to the drug.

Avoids rebound insomnia upon discontinuation.

Rebound insomnia—a worsening of sleep beyond pretherapy levels after drug discontinuation—has been reported as a potential clinical problem with some hypnotics.^{9,10} However, this problem has not been reported with Dalmane. In eight out of eight sleep laboratory studies, there were no reports of rebound insomnia.¹¹ When you prescribe Dalmane, you can be confident of efficacy that enhances therapeutic progress. Your insomniac patients can be assured of a restful night, night after night—a good start for a good morning.

References: 1. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 2. Zimmerman AM: *Curr Ther Res* 13:18-22, Jan 1971. 3. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977. 4. Data on file, Hoffmann-La Roche Inc., Nutley, NJ. 5. Meyer JA, Kurland KZ: *Milit Med* 138:471-474, Aug 1973. 6. Feller HL, Gibbons B: *Med Times* 101(8):130-135, Aug 1973. 7. Jacobson A et al: *Psychophysiology* 7:345, Sep 1970. 8. Frost JD Jr, DeLucchi MR: *J Am Geriatr Soc* 27:541-546, Dec 1979. 9. Kales A, Scharf MB, Kales JD: *Science* 201:1039-1041, Sep 1978. 10. Kales A et al: *JAMA* 241:1692-1695, Apr 1979. 11. Monti JM: *Methods Find Exp Clin Pharmacol* 3(5):303-326, 1981.

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect.

Adults: 30 mg usual dosage; 15 mg may suffice in some patients. **Elderly or debilitated patients:** 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



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Childhood Respiratory Infections with Evidence of Viral-Streptococcal Interaction

LEON SATRAN, M.D.;* PATRICIA FERRIERI, M.D.* and HENRY H. BALFOUR, JR., M.D.*

During a two-year period 70 episodes of acute respiratory infection in 66 children were studied at the University of Minnesota Health Sciences Center Pediatric Clinic. Throat swabs and paired sera were obtained for viral and bacterial cultures and antibody titers. A viral diagnosis was confirmed in 33 episodes (47%). Eighteen patients had evidence of Group A beta hemolytic streptococcal colonization or infection, five of whom had dual viral-streptococcal infections. Otitis media was associated with influenza A and respiratory syncytial virus. Tender anterior cervical adenopathy was the most consistent clinical finding in patients with streptococcal infections. Patients with evidence of streptococcal infections were older than those with viral infections (5.9 years versus 3.1 years, *t* test for comparison of means significant at the 0.05 level). Patients with throat cultures positive for Group A beta hemolytic streptococci often did not have streptococcal antibody titer rises which may indicate that they were streptococcal carriers, especially when the clinical impression was that of a viral infection. We concluded that use of the clinical microbiology laboratory, including viral cultures and serologies, made it possible to identify an etiologic agent in over half of the acute respiratory infections studied. Knowledge of a precise viral etiology is useful in epidemic situations and will become more important as antiviral drugs are developed and licensed.

ACUTE RESPIRATORY INFECTIONS in infancy and childhood are extremely common and cause considerable morbidity.¹ In order to determine the proportion of children in whom a precise etiologic diagnosis could be made, and to correlate particular agents with symptomatology, a two-year clinical and laboratory investigation was conducted. Viral infections were the most common, as previously observed,²⁻⁴ but streptococcal and, surprisingly, dual-viral-streptococcal infections were documented.

Subjects and Methods

Children who presented at the pediatric clinic of the University of Minnesota Health Sciences Center with upper respiratory signs and symptoms were enrolled in the study after informed consent was obtained from a parent or guardian. Symptoms, including temperature elevation of at least 38°C, were present in all patients for 48 hours prior to evaluation. Otitis media was diagnosed on the basis of an inflamed, bulging, poorly

mobile tympanic membrane, with or without otorrhea. The posterior pharynx was swabbed briskly using two Culturette† swabs. One swab was cultured for group A beta hemolytic streptococci and the other for viruses. At this time an acute serum sample was taken aseptically from an arm vein. Patients were instructed to return to clinic approximately four weeks later for convalescent serum samples. This study was approved by the University of Minnesota Committee on the Use of Human Subjects in Research.

Throat swabs were swirled in 1 ml of Hanks balanced salt solution containing gelatin and antibiotics. The resulting suspensions were inoculated into duplicate wells of HEp-2, human foreskin, and primary rhesus monkey kidney cell cultures (0.1 ml/well). Cultures were examined every other day for cytopathic effect and supernatants were tested for hemagglutinating agents at three, five and seven days after inoculation using 0.4% guinea pig red blood cells. Viral isolates were identified by neutralization, complement fixation, or hemagglutination-inhibition using specific hyperimmune antisera. Cultures not showing cytopathic effect or hemagglutination after eight days of incubation were considered negative. These virologic techniques will isolate all medically

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†Marion Scientific, Rockford, Illinois.

Reprint requests to Box 437 Mayo, University of Minnesota Health Sciences Center, 420 Delaware Street SE, Minneapolis, MN 55455 (Dr. Balfour).

This study was sponsored in part by NIH grant No. AI 09527.

important human viruses except coronaviruses, hepatitis, rhinoviruses and rotaviruses. Acute and convalescent samples were tested simultaneously for complement-fixing (CF) antibodies to adenovirus, influenza A and B, parainfluenza 1-3, and respiratory syncytial virus (RSV) using a modification of the Kolmer technique.⁵ Viral infection was diagnosed by a fourfold increase or decrease in antibody titer to the agent tested.

Antistreptolysin O (ASO) and antideoxyribonuclease B (anti-DNase B) titers were measured by the microtiter system using methods previously described from our laboratory.⁶ Serum samples from each patient were tested simultaneously. A significant rise in antibody titer was defined as two (0.2 log) or more dilution increments in serial bleedings. Patients with high acute phase antibody titers were considered to have had previous recent exposure to group A beta hemolytic streptococci. A true group A streptococcal infection was defined as recovery of the organisms from the pharynx with an antibody rise. Streptococcal carriage was defined as recovery of group A streptococci without an antibody response. Patients with antibody rises but negative throat cultures were considered to have presumed streptococcal infection.

Results

During a two-year study period, 70 episodes of acute respiratory disease in 66 children were studied (Figure 1). Four children were seen for a second infection. The mean age of the patients was 4.8 years (range, 13 months — 12 years). Paired sera were collected from 55 children a median of 35 days (mean, 51 days) apart. Thirty-three cases of viral infection were documented among the 70 episodes of respiratory disease. Five children with diagnosed viral illness also had evidence of group A streptococcal infection (Figure 1).

Group A beta hemolytic streptococci were isolated from 14 patients (21%), six during the first year and eight in the second. Only four of the 14 had significant rises in antibody titer to streptolysin O, streptococcal DNase B, or both antigens, and were classified as having definitive group A streptococcal infections (Figure 2). Ten of the 14 patients with positive throat cultures who did not have antibody titer rises to streptococcal antigens were categorized as streptococcal carriers. Four patients with throat cultures negative for group A streptococci showed significant rises in streptococcal antibody titers (Figure 1). These patients had presumed streptococcal infections (Figure 2).

There were five children with evidence of dual viral-streptococcal infections. Group A streptococci were cultured from three children, and all five had

significant rises in streptococcal antibody titers. Two of these five patients had RSV infection, while one each was infected with adenovirus, influenza B or parainfluenza type 2 virus.

Fever occurred in all 10 patients infected with influenza A. Seven of the 10 had rhinorrhea, six had pharyngitis and six had otitis media. Of 11 patients with adenovirus infection, only two had otitis media. Five (42%) of 12 patients with RSV infection had otitis

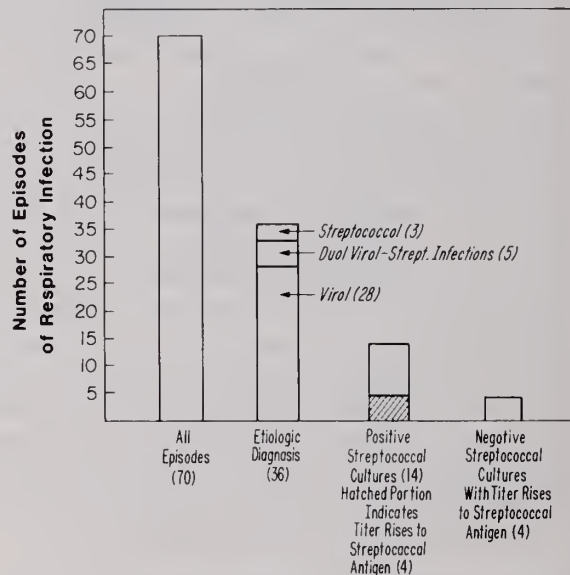


Fig. 1 — A precise laboratory diagnosis was made in 36/70 episodes. The two bars on the right show the streptococcal data: 4/14 culture-positive patients had antibody titer rises to streptococcal antigens as did 4 other patients (far right bar) who were culture negative.

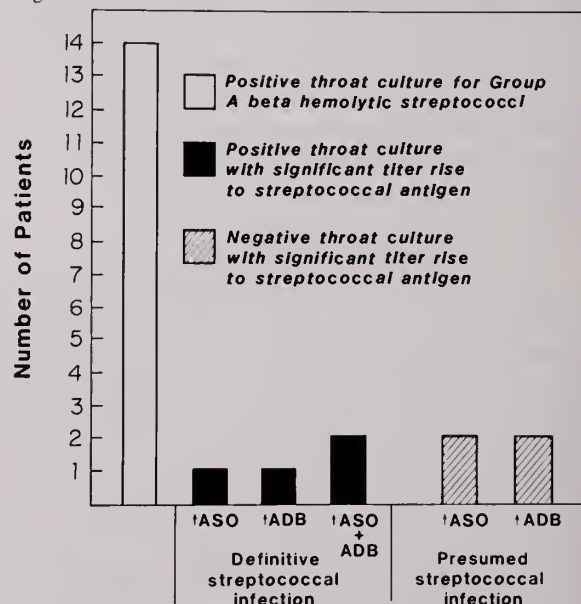


Fig. 2 — Significant rises in streptococcal antibody titers in patients with definitive (culture positive) and presumed (culture negative) streptococcal infection.

media. Generally, children with RSV infection appeared more toxic with higher temperature elevation and severe cough, whereas those with adenovirus or influenza B were less ill. Five of eight patients with definitive or presumed streptococcal infection had pharyngitis, and four of eight had tender anterior cervical lymph nodes.

The mean age of patients with streptococcal or dual viral-streptococcal infections was 5.9 years (range 2.5 — 9.25 years) compared with a mean age of 3.1 years (range .75 — eight years) for those with only viral infections. The means were statistically different at the 0.05 level (t test for the comparison of two independent means).

Discussion

The data presented here suggest that the majority of upper respiratory infections encountered in childhood are viral, an observation noted by Hable, et. al., who compared findings in children with acute upper respiratory tract disease and healthy controls.² However, the presence of such infection does not necessarily preclude concomitant respiratory illness caused by group A streptococci.

Of our five patients with dual viral-streptococcal infections, all had serum titer rises to streptococcal antigens. The dual infections encountered raise speculation about possible viral-streptococcal synergy that has been discussed in earlier reports,^{4,7} and more recently was noted by Porter, et al., who described two adults with simultaneous picornavirus and group A streptococcal infection resulting in severe myositis and rhabdomyolysis.⁸ The absence of antibody titer rises in most of our patients with positive streptococcal throat cultures supported the existence of a carrier state for group A streptococci. This underscores the importance of the finding that in the five children with dual infection, streptococcal antibody titer rises occurred.

Studies of viral and streptococcal respiratory illness

in children are being done with increasing frequency because of the obvious importance of these agents in causing disease not only in youngsters, but in other family members as well. The morbidity produced in both pediatric and adult populations results in considerable time lost from school and work. In viral respiratory studies involving large groups of patients,^{9,10} diagnosis usually has been made by viral isolation alone, without obtaining paired sera for antibody studies. The use of serologic methods in addition to culture techniques facilitates diagnosis in cases where viral or streptococcal cultures are negative.

Although this study included only ill children and did not have asymptomatic age-matched controls, it nevertheless shows that etiologic diagnosis is possible in nearly half of acute childhood respiratory illness when appropriate isolation and serologic techniques are used. It is obviously impractical to attempt precise diagnosis in the vast majority of such illnesses. However, in certain epidemic situations it is of value to identify specific etiologic agents. For example, Hall and Douglas have shown that such a surveillance system can provide early detection of the arrival of RSV and influenza A virus in a community.¹¹ Knowledge of which viruses are prevalent in a community aids the physician in predicting the clinical findings and spread of disease, and in the near future, may permit appropriate utilization of antiviral agents.

The greater number of streptococcal infections that we observed in older children compared with infants and toddlers in this study is consistent with previous reports^{12,13} which indicate that streptococcal pharyngitis occurs most often in the six to eight and twelve to thirteen year age groups. The clinical significance of this observation is that when respiratory infection, especially pharyngitis, is encountered in the infant or young pre-school child there is a greater likelihood that the etiologic agent is viral rather than streptococcal.

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Evolution in the Treatment of Idiopathic Scoliosis in Minnesota

A Family Report

R. B. WINTER, M.D.*

A mother, operated on in 1948, her daughter, operated on in 1971, and another daughter detected early and braced demonstrate the significant improvements in the treatment of idiopathic scoliosis.

THE EVOLUTION OF the treatment of scoliosis in Minnesota over the past thirty years, is illustrated by 3 cases in two generations of one family. These case histories show the tremendous advantages of early detection and early brace treatment.

Case Reports

Case 1

An eleven-year-old white female presented to Gillette Children's Hospital in July, 1948 with a 60 degree right thoracic idiopathic scoliosis, detected by her mother because of difficulty in fitting a dress. She underwent correction in a turnbuckle cast, the usual and customary form of correction utilized in that era. She was fused from T5-T11. She remained in bed in the turnbuckle cast for four more months.

Six months after removal of the cast, it was apparent that the fusion area selected was too short and that her curve was extending below the fusion area. She then underwent a second operation, two years after the first, in which the fusion was extended to L3. Following this, she was immobilized in a Milwaukee brace for six months of bedrest and four more months of ambulatory brace immobilization. She had spent fourteen months in bed, had undergone two operations, and spent twelve months in a cast and ten months of full time brace use, and had spent 550 days in the hospital.

She was followed at Gillette Hospital until she was twenty-one and then she was lost to follow-up. Several years later she reappeared bringing her daughter for scoliosis treatment and we were able to obtain further follow-up. When last seen in August 1979, at age forty-two, thirty-one years following surgery, her fusion was solid at 40 degrees and her curvature is well controlled and she was free of all complaints. She has no back pain. She is married, has three children, and has performed all the usual and customary activities of a homemaker.

*Chief of the Spine Service, Gillette Children's Hospital, St. Paul, Professor, Department of Orthopedics, University of Minnesota, Minneapolis, and Director of Orthopedic Education, Fairview-St. Mary's Hospitals, Minneapolis.

Case 2

The daughter of the patient in Case 1, presented to the author in 1971 at age 14 with a 62 degree right thoracic idiopathic scoliosis, a strikingly similar curve to her mother's. She underwent a correcting procedure for such a curve, Harrington instrumentation and spine fusion. Her total hospitalization time was twenty-one days, her total time in the cast was nine months, and her total time in bed was fourteen days. She has had no further problems and at the last follow-up in 1975, the curve measured 39 degrees. Although the end result of the daughter and the mother are the same: that is a well fused spine with a reasonable amount of correction and a functionally healthy individual, the strain and effort to achieve this result is markedly different utilizing the more modern methodologies of 1971 compared to 1948.

Case 3

A second daughter of the patient in Case 1 presented in 1976, at age 13 with a 21 degree, right thoracic idiopathic scoliosis, the same curve pattern as her older sister and her mother but at a much lesser degree. The mother's natural interest in scoliosis had led to this obviously earlier detection of the curvature. She was immediately placed in a Milwaukee brace and placed on the standard brace exercise program. She wore her brace faithfully and did the exercises as prescribed. At the present time, she is completely out of the brace and her curvature measures only 14 degrees. She has never been hospitalized and with the exception of contact sports and gymnastics, she has engaged in full activity.

This third patient demonstrates the obvious advantage of earlier detection and non-operative treatment. Her end result is a flexible mobile spine, with no scar, no disability, and no hospitalization.

Discussion

This simple three-patient two generation, one-family case report indicates the evolution of scoliosis care in the State of Minnesota. All three patients have good results of treatment, but the youngest daughter whose problem was detected earliest has had entirely non-operative treatment. Her final curvature by far is the smallest.

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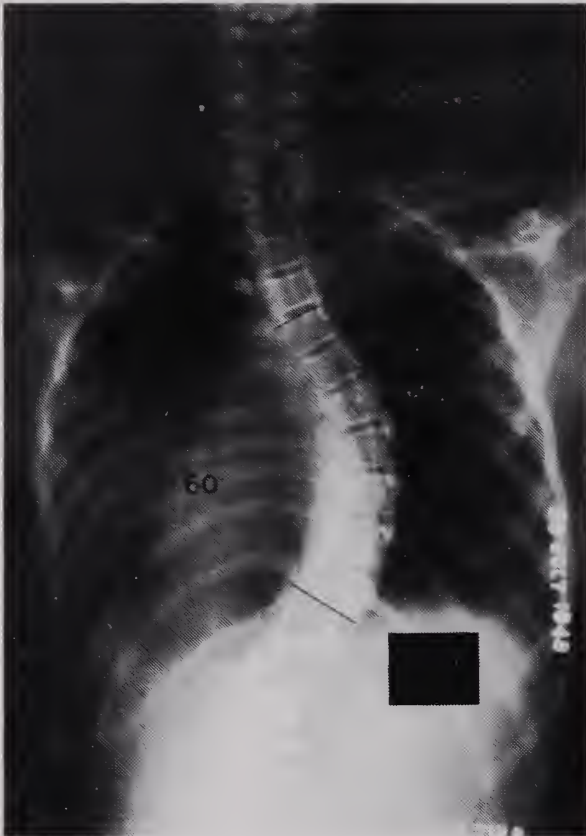


Fig. 1(A) — A roentgenogram demonstrating a 60° right thoracic idiopathic scoliosis in 1948 at age eleven.

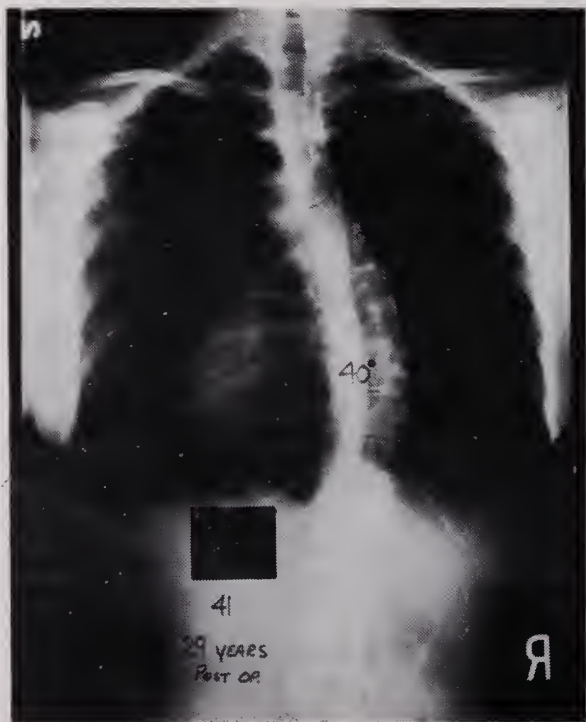


Fig. 1(D) — A roentgenogram in 1977, twenty-nine years following her spine fusion. She has no symptoms at this time.

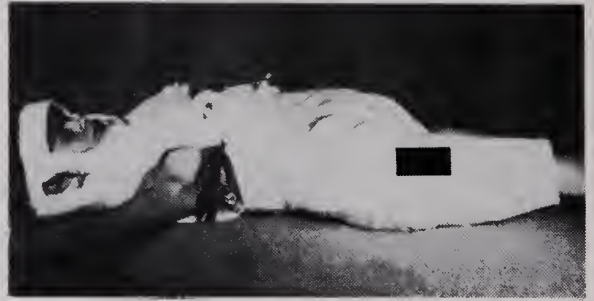


Fig. 1(B) — The turnbuckle cast of 1948, showing the patient at the time of correction. She spent 5 months in this cast.



Fig. 1(C) — The patient is seen in 1950 after the second operation, wearing a primitive type of Milwaukee brace.



Fig. 2(A) — A posterior photograph of the elder daughter taken prior to her surgery. Her curve measured 62° .

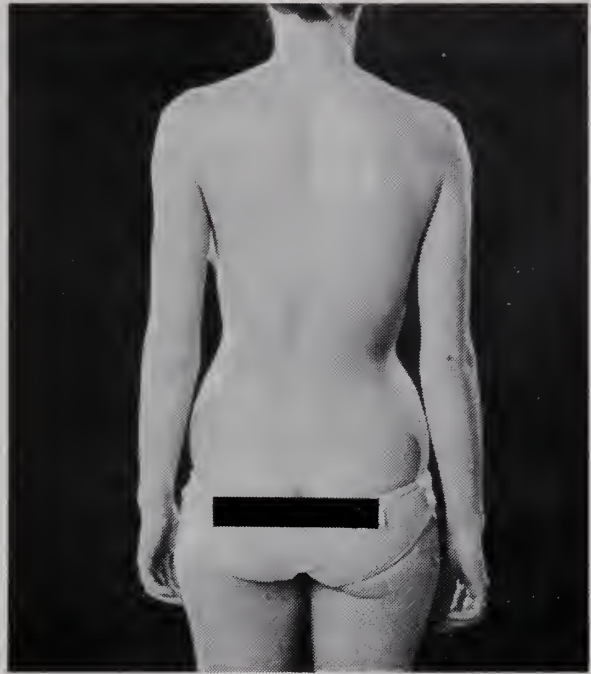


Fig. 2 (B) — The same patient four years later. Her curve residual measures 39° . She has no symptoms.

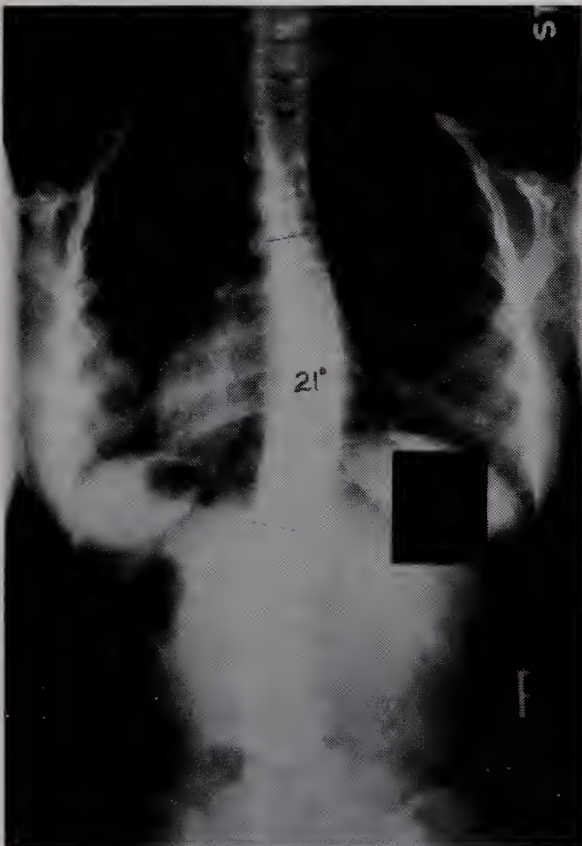


Fig. 3(A) — A roentgenogram of the younger daughter at age 13 with a 21° curve. A brace program was prescribed at this time.

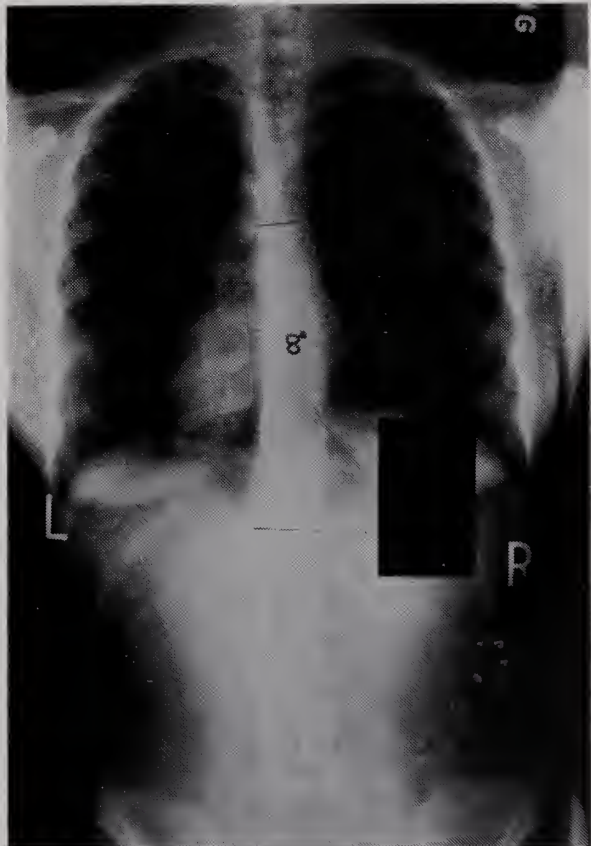


Fig. 3(B) — A roentgenogram at age 16 when she was being "weaned" out of the brace. The curve measures only 8° .

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CME in Europe: Family Doctors Lead the Way

DOUGLAS A. FENDERSON, Ph.D.*

FAMILY DOCTORS in Europe, stimulated by a new sense of professional identity, are taking charge of their own continuing education. Physicians are participating enthusiastically and contributing useful and effective procedures that will be of interest to physicians in the United States.

This brief summary will describe some of these, observed during my January-March 1981 study leave, with the hope it will stimulate local programs to try to improve their relevance and learning value. My descriptions will be based on experiences in six countries included in my study.

The Netherlands

Each participating physician is given a series of written case problems. The physician studies each problem and prepares a written analysis and plan for diagnosis and treatment. As many as forty of these "paper cases" may be used in a week-long conference.

After all participants have completed their analyses and plans, the conference leaders present each case to the whole group. A panel of physicians, often including the invited guest consultant from the regional medical school, discusses the case and responds to comments and questions.

The success of this method depends largely on the selection of appropriate case problems. Two methods are used. The first method requires the cooperation of several family physicians who agree to keep notes for a week or two on all cases they see about which they had some uncertainty or wished they had a more complete understanding. From these notes, the planning committee selects those to be written up as case problems. The second method, the "FSP Model," is more formal. This method requires a group of practicing doctors to complete a form on which they judge the relative Frequency, Seriousness, and associated Problems of treatment and Management (FSP) of a list of diagnoses. These responses are tabulated and studied and form the basis for selection

of problems which often include implications of attitudes and values as well as knowledge of facts and skill.

Denmark

A more complex version of the case problem has emerged in connection with the physician-owned, resort-type center of CME. In this approach, groups of family doctors plan the several week-long courses for the center. Nearly every Danish doctor attends one of these courses every two or three years. After the theme and objectives of each course have been selected, typical case examples are identified. A video camera team goes to a doctor's office to "shoot" a brief encounter with a patient appropriate to the objectives. Each tape is edited to five- to ten-minutes. Two or three discussion questions regarding diagnosis, treatment, compliance or some other aspect of care are added at the studio.

Each one-week course consists of nine, half-day sessions. Each session begins with the videotape and questions of a single case. Participants (limited to 100) see the tape in small groups of seven to nine. After viewing the tape, they discuss the questions — no leader is present. While this is going on, an "expert" panel is also discussing the case; this discussion is videotaped. At the end of the half-hour, the "expert" tape is played into the twelve small-group rooms. Then, each physician is asked to spend five minutes writing all the pertinent questions he/she can regarding the case. These are collected and while the participants have a leisurely break, the "expert" panel organizes the questions into a coherent sequence. The entire group now convenes in a large auditorium where the questions are then discussed.

Although scientific evidence of improved medical care is lacking, organizers believe that the process is powerful, involving such methods as leaderless groups and the so-called "nominal group process" (writing questions) and assures personal relevance and involvement. This technique is very popular with Danish physicians and has recently been exported to a center in the eastern United States.

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France

More than half of the family physicians in France are involved in local small-group learning experiences. This remarkable development grew out of the convictions of Dr. Guy Scharf, a family doctor who believed that his medical education had not prepared him adequately for the realities of medical practice. Dr. Scharf's approach to CME, by and for family doctors, has earned the title, "The French Model." Scharf has produced a do-it-yourself manual as an aid to local groups; and through his Federation of French Continuing Education Associations, teaches local leaders and organizers the basic elements of teaching theory and methods. Scharf says that family physicians are the only group in France that have a credible program of continuing education.

What is special about the French model? Primarily strident independence and reliance on small, local groups in charge of their own affairs. Scharf teaches local practitioners the rudiments of educational methods. He tells them that lectures by experts have a limited place in their education. One lecture a month, on a subject of personal interest, is enough of this factual "informing of the masses." A second and more important part of his plan is the small, personal affinity group of five or six who meet once each two weeks to review cases with an invited consultant (he calls them "dictionary men"). Cases are selected by a consultant who is asked to identify *instructive*, not merely *interesting* cases, pertinent to the role of the family physician; alternatively, one of the group members brings a problem case for informal sharing of experience.

The third and most valued part of the French Model is "the course" — an on-going group of not more than twelve physicians who agree on a theme, subject, skill, or behavioral technique as the basis for the course. The group decides on the frequency and duration of the sessions, but some of these have met weekly for years. Emphasis is on the details of clinical performance — procedures, manual skills, conflicting attitudes. Consultants may be brought in, but strictly as consultants, not as lecturers. The entire process is firmly under the control of the group and based on rather formal statements of expected outcomes.

Serious efforts are made to assess progress with skills and problem solving, but Scharf admits that more rigorous study of clinical impact is required. Consultants are asked to critique the group, and the group members critique both the consultants' contributions and the "pedagogical activity and effect."

Great Britain

Although a formal network of regional post-graduate centers exists and frequent noon lectures at local hospitals are held, the real action, again, is with practicing family doctors often designated as 'Regional Advisor in General Practice' who coordinate both the in-practice training of residents as well as regional CME activities. Multiple small groups — forming, changing, breaking-up, and re-grouping — are again the basic procedure. Because small-group methods place such heavy responsibility on participants, there is danger that some physicians may be embarrassed and alienated in the process. Therefore, the selection and training of volunteers to be group leaders is very important. Sources of content for the small group studies include self-audit, random case selection, "tracer conditions," and observations by consultants regarding referrals.

An instructive variation was observed in Livingston, Scotland. Physicians in a local clinic have developed a simple procedure for classifying patients so that any important subgroup by age, sex, diagnosis, or other key variable may be identified quickly. By studying groups of cases and patterns of care, the practice itself has become a major source of education. They have developed their own simplified version of the Problem-Oriented Medical Record as an aid to learning, both for themselves as well as the residents assigned to them.

The Department of General Practice at Manchester is using epidemiological and socio-economic data to examine differences in morbidity, mortality and utilization of health services to identify areas in which targeted programs of CME can yield significant health gains.

West Germany

Diversity best describes CME in Germany. Several of the state (Lande) societies own resort-type conference centers. Pharmaceutical sponsorship of CME courses is common and influences the selection of topics and speakers. Medical schools have very limited involvement with CME. An important exception is the Institut für Didaktik der Medizin of the Medical School of Bonn University. Its Director, Dr. Hans Renschler, collaborates with many groups to study and improve CME offerings throughout West Germany.

A unique contribution to CME in West Germany is an annual hard-cover book, published by the German Medical Society (Bundesärztekammer) based on a one-week conference on 'what's new and clinically

useful' in each of the specialty fields.

Physicians in Europe are strongly opposed to compulsions — legal or professional — for CME. They believe the best results are obtained when physicians

themselves assume strong leadership on their own behalf, learn the "minimum essential" concepts and procedures of adult education, and apply them to their own needs.

The Xenodochium of Pammachius

WARREN L. KUMP, M.D.*

One of the earliest Christian hospital-like institutions about which there is much information was a xenodochium, a hospice for sick travelers, built about the year 398 by the wealthy and learned Roman senator, Pammachius. Details of the institution survive in the writing of St. Jerome, who was a friend and boyhood schoolmate of Pammachius.

The xenodochium was built near Ostia, the seaport of Rome, at the mouth of the Tiber. The port city was a busy place, because of the heavy traffic of pilgrims visiting Rome, and of church officials and commercial people arriving and departing by sea to all parts of the Empire. Here Pammachius began his charitable work after the death of his wife, assuming the habit of a monk, although continuing to keep his seat in the Roman senate. Joining him in the work was another friend of St. Jerome, the wealthy Roman matron, Fabiola, famous in her own right for her charities which included caring for the sick poor of the city of Rome.

Excavation of what were believed to be the ruins of the ancient hospice was undertaken in the nineteenth century under the leadership of Prince Alessandro Torlonia. Identification was based largely on the location of the ruins and the fact that rich utensils, some of silver, found during the excavation seemed to indicate wealthy and generous patrons. On this shaky evidence and despite only partial excavation of the site, a complete floor plan was projected and published in 1866. For a hundred years the identification was widely accepted as authentic, but more recent study indicates that the ruins are probably those of the Church of Saints Peter and Paul.

It is not known how long the xenodochium continued to function, but Pammachius died in A.D. 410 during the siege of Rome by the barbarian Alaric.

*Radiologist, Minneapolis, Minnesota.

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Cost-Effectiveness in Geriatric Care*

JOHN F. FARRINGTON, M.D.†

CONSIDERATION OF cost-effectiveness in geriatric care requires acknowledgement of four facts characterizing health care problems of the elderly. They are: (1) Geriatric patients have diverse and individual needs. Although we tend to equate "geriatric needs" with those of 1.1 million institutionalized elderly people, this group represents less than 5 percent of all people over 65.¹ (2) Resources are limited. In 1977, the outlay for health services for the elderly reached \$41 billion — approximately 28 percent of the total spent for all Americans. Roughly 67 percent of the cost of medical care for the elderly was financed by public funds, compared with 29 percent for those under age 65.² (3) Aging and illness are not synonymous. The pivotal Institute of Medicine report, *Aging and Medical Education*, reports that most people over age 65 of any race, sex, geographic location, and socio-economic status regard themselves as being in good to excellent health.³ (4) The difference between medical and health care must be clearly delineated. Medical care refers to that portion of care directly under the physician's control, while "health care" includes social, economic, and environmental influences beyond medicine's control. This distinction is particularly important when dealing with a group whose primary needs include transportation, housing, education, recreation, nutrition, and financing, in addition to medical care.

In our society, aging is a socio-economic phenomenon with two intertwining factors. First, the elderly are influenced by outside forces over which they have little control — including retirement, pensions, decreasing incomes, Social Security, and Medicare. These frequently are unrelated to changes in the individual's mental or physical function. These factors continually reinforce a state of dependency that leads to depression and anxiety in many geriatric patients.

Second, a pervasive cultural attitude makes us perceive aging as the defeat of youth and results in widespread negative social attitudes about the elderly: "The elderly are present in increasing numbers, and even though more and more is known about aging and care of the aged, there is still more that needs doing

particularly in the area of research, medical education and public attitudes about aging. Probably the greatest need of all is to change our cultural attitudes about the aged. The real need is far more than an intellectual obligation. We need to have the same positive attitude toward the aged that we have towards children."⁴

Within this framework, cost-effectiveness in geriatric care can be addressed in three general areas:

Research

Additional research in socio-economic and clinical factors affecting the elderly is imperative. Although geriatric patients accounted for 28 percent of all medical care expenses in 1977, less than \$41 million was spent on geriatric research. According to the Institute of Medicine's listing of federal research activities, only 1 percent of research funds was allocated for geriatric-related studies.⁵

Objective research into the health care delivery systems that can be used to provide care for the elderly is essential. Areas which warrant investigation include: (1) Alternate methods of delivering health care: The traditional patient-physician relationship should be compared to systems using allied health personnel who function under a physician's direct supervision using pre-established protocols of care. Other paramedical models must also be studied to determine which will work best in nursing homes, skilled nursing facilities, ambulatory care settings and acute care hospitals. (2) Proper placement of individuals: Geriatric patients may be inappropriately admitted to institutional care (intermediate or skilled nursing facilities) when more economical and effective alternatives — such as Meals-on-Wheels, home health care or day care — would be appropriate. Physicians must become more familiar with the available community services so that proper placement can be achieved. Medicare and Medicaid must also provide reimbursement for home health agencies that function in this capacity. (3) Impact of reimbursement systems on patient management: Medicare initially was designed to provide a basic package of hospital benefits which was well-defined when the measure was enacted in 1968. However, there has been no national consensus on long-term care and social services, which have been added to the original legislation in piecemeal fashion.

*Adapted from a speech presented to the Minnesota component of the American Society of Internal Medicine on May 2, 1980.

†President, American Society of Internal Medicine; practicing internist in Boulder, Colorado.

Although the medical services program is administered nationally, the long-term care and social benefits are handled on a local basis. The maze of requirements, administered by several different agencies, often interferes with the physician's ability to provide optimal care in an efficient manner.

Biomedical research must continue to expand the body of knowledge that now exists. High priorities must be placed on changes that occur in the central nervous system, as well as other clinical areas, so we can determine why some people maintain good physical and mental activity into their 80s and why others are old at 65.

Education

Throughout a physician's professional life (medical school through CME), medical education must contain material on gerontology and clinical geriatrics. Elderly patients constitute a substantial portion of most physician's practices, except for pediatricians. More than one half of the typical internist's patients are over age 55, and a third are over age 65.⁶ For this reason, the American Society of Internal Medicine (ASIM) House of Delegates recently opposed recognition of geriatrics as a formal specialty or subspecialty.

The ASIM House, however, did support additional emphasis on geriatrics and clinical gerontology at all levels of medical education under the purview of internal medicine. Until recently, geriatrics and clinical gerontology have been the stepchildren of formal medical education. Those of us who treat geriatric patients have learned through experience the different pharmacodynamics of the older person, the prevalence and interaction of multiple diseases, and the different ways elderly people present with old familiar diseases. This type of on-the-job training is no longer acceptable.

Medical school clinical years should provide the student with: (1) basic clinical skills to assess the elderly patient's physical, medical, and emotional status; and (2) an awareness of the diversity of the elderly's needs and problems of aging. This experience should be continued in a variety of clinical and academic settings, including acute care hospitals, physicians' offices, long-term care facilities, and

patients' homes. Because of pressures to incorporate this and other clinical subjects in a three-year residency training program, ASIM has recommended that internal medicine residency training be expanded to four years to provide additional exposure to ambulatory care (including geriatric patients) and the medical subspecialties, without sacrificing the resident's basic clinical knowledge.

Public Attitudes about Aging

This area presents the most difficult area of change — particularly since many socio-economic factors are beyond the control of the medical profession. Crucial factors which must be addressed include: (1) Health care delivery systems, including Medicare and private insurers' reimbursement mechanisms, that favor hospitalization over ambulatory treatment and preventive services must be changed. (2) Financing of much needed research in clinical geriatrics and gerontology — in both the socio-economic and clinical areas — must be expanded. (3) Pension systems and arbitrary age-determined requirements for retirement must be re-evaluated. The present pension system is built on a three- to five-year expectancy after retirement at age 65. This projection is no longer realistic with retirement at age 62 and life expectancies averaging an additional 10 to 20 years. (4) Innovative solutions for problems of housing, transportation, communication, recreation, and education must be undertaken utilizing existing facilities. (5) Lack of social supports for the elderly was identified by attendees at a recent ASIM CME evaluation study as the "most serious socio-economic" problem affecting their geriatric patients. A major change in familial attitudes and financial arrangements will be necessary to permit families to take care of their elderly parents and grandparents.

A decision of the U.S. Court of Customs and Patent Appeals states: "Invention isn't always the offspring of genius; more often, it is the result of plain hard work. Sometimes it arises from accident or carelessness. Occasionally it is the happy thought of an original mind and sometimes, invention is simply the product of sheer stupidity." Whatever our method, we should overcome the obstacles that have been placed in our path before age overtakes us all.

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History

William J. Mayo — Centennial Notes

JACK D. KEY, M.A., M.S.;* JOHN A. CALLAHAN, M.D.† and CLARK W. NELSON, N.A.R.S.‡

IT IS THE purpose of this paper to comment briefly on two items of historical interest concerning Dr. William J. Mayo (1861-1939). These events happened one hundred years ago, at the beginning of his medical career.

William J. Mayo (Figure 1) entered the University of Michigan Medical School in the autumn of 1880 and graduated in 1883 when he was twenty-one years old. In the spring of 1881 an event took place which caused a public furor and threatened the careers of several faculty members and possibly even a break-up of that medical school. Half-truths and distortions concerning this event rocked the university community. The medical school had been depicted as a hotbed of atheism and menace to the morals of youth. Reminiscing in 1929, Dr. Mayo recalled:

... one of the students in the course of a clinic sent a note down to Professor Frothingham^{††} asking whether he and some others might be excused from attending Frothingham's next clinic to go to Detroit to hear "Bob" Ingersoll lecture. Ingersoll at that time was delivering lectures ridiculing the Bible and its teachings. Frothingham, on reading the note, said that in the first place he objected to speaking of a distinguished man like Ingersoll as "Bob". He said, "We hear Thomas Paine, one of the greatest constructive agents in the building up of the United States following the Revolution, called 'Tom', yet no one has ever heard Thomas Jefferson called 'Tom' ". At that a red-haired, red-whiskered, medical missionary student, about forty years old, jumped up and objected vigorously to such atheistic teaching, and made quite a scene. He was sitting in front, in the second row from the platform. Some of you may remember that it was not uncommon for the boys to pick up a student on occasion and pass him from row to row over the assembly. Some one seized the missionary as he was haranguing, and started him on his way up over the amphitheater

seats. The boys at the top failed to stop him and he went out through a window and fell into a lilac bush. He was rather badly scratched and I believe a bone in one leg was broken. The occurrence . . . threatened to break up the medical school, especially as related to Frothingham and MacLean, but the school as a whole stood by them, because all of us who were there realized that nothing that Frothingham had said could be construed into what had been credited to him in the public press and in the churches.¹

A small group of the students including Mayo were much concerned over the matter and gave what aid and support they could to establishing the truth. Their discussions continued into the next year and were extended to include a consideration of the weaknesses of their future profession. They decided that some sort of medical fraternity should be established which would be interested in higher scholarship, better teaching, and more loyalty among its members both to each other and to their profession. This idea bore fruit



Fig. 1 — Early photograph of William J. Mayo.

*Librarian, Mayo Clinic Library, Rochester.

†Division of Cardiovascular Diseases and Internal Medicine, Mayo Clinic, Rochester.

‡History of Mayo Reference Unit, Mayo Clinic, Rochester.

††George Frothingham, Professor of Ophthalmology and Otolaryngology, was perhaps the most brilliant man on the staff. In some way or other he had gained the reputation of being an atheist.

on March 2, 1882, with the formation of the Nu Sigma Nu Fraternity — the first medical school fraternity founded on a university basis. The six charter members of Nu Sigma Nu were Frederick C. Bailey, Charles M. Frye, John L. Gish, William J. Mayo, Robert D. Stevens, and Benjamin G. Strong.

Though Nu Sigma Nu is now inactive, at its zenith there were almost fifty chapters and over twenty-six thousand members. It had among its members and alumni some of the most brilliant men in medicine in the world.

Just six days after the founding of the fraternity, William J. Mayo presented a brief paper (Figure 2). There is no way of knowing for certain to what group

this was read. Being aware of the foregoing events at that particular time and given the general nature of the paper it is tempting to speculate that he might have written it to share with members of the fledgling fraternity. In any case we do know that it is the earliest dated extant paper given by William J. Mayo.

Throughout his life Dr. Mayo was dedicated to the principles which formed the corner-stone of that first medical school fraternity he helped establish. These were truth, higher scholarship, better teaching, and loyalty to one's colleagues and profession. Another appropriate illustration of his basic philosophy is seen in the following statement "What a man may do with his own hands is small compared with what he can do

Ann Arbor Mich. March 8th '82

Gentleman

I will refrain from beginning my paper by the usual stereotyped phrase, "Owing to lack of time, pressure of business &c," but will leave you to judge that by the facts and matter contained. The able paper of M _____, last Monday evening, on "The chemistry of life" leads me to think of the relations of living matter to the dead, of organic to inorganic substances. I now propose to discuss, for a short time, the cycle of changes or the chain of three links; in which the inorganic, vegetable and animal kingdoms each act as a link, and to show their close relationship. You will please notice that I have placed the vegetable kingdom between the other two; this was done that I might the more readily point out its relations to the inorganic on the one side, and the animal on the other; this I will attempt to do under four heads. 1st The vegetable lives upon the inorganic, or is capable of transforming the inorganic into vegetable tissues: it being good for, or transformed into, animal tissues. 2nd The lowest forms of vegetables closely resemble or approximate the inorganic: while the highest forms as closely—aye more—cannot be distinguished from, certain low forms of animal life. 3rd At certain depths in the earth's crust, we find only inorganic matter; above, showing a later period, the remains of gigantic vegetable growths as see the coal fields; above, but little below the outer crust of the earth, we find the remains of low forms of animal life in great abundance; simply showing that vegetable is the link placed between the first and the last. 4th and last. Scientists tell us that, at an early period, the earth was a molten ball; with our present knowledge we know we cannot have combustion without oxidation, now let us briefly consider the principal products of oxidation, they are water and CO₂ carbonic anhydride, would the water produced account for the "Flood"? Water and CO₂ are the food for the vegetable kingdom, the plant retains the carbon and gives off the oxygen; this may account for the coal deposits. Oxygen and the plants are the food of the animal and here again the vegetable connects the two and is and was necessarily placed between the two and must have existed before the animal. I have now, to the best of my ability, joined the links into a chain, and it remains for me to join the first and last links to finish the circle and the cycle of changes through which substances pass is complete. Now, gentleman, I propose, for a short time, to discuss the subject of atrophy; as the beginning of the process by which the first and last links are connected, the animal and inorganic; not as a disease but as a gradual wasting or degeneration; not the total cessation of the formative process, but its deficiency in quality, as fatty degeneration of the old, or in quantity as the withered wasting of the old; in time by old age one of these occur naturally. From birth to manhood we have development; then, a period of rest, followed by a retrograde progression toward the inorganic called atrophy and death and the completion of the change finishes the cycle, the links are united. To degenerate and die is as natural as to be born and live; the expansion of growth, the development and vigor of perfect manhood are not more natural than the decay of time by old age. Bichat says "That, "Life is the sum of the functions which resist death", but, the history of life show that the exercise of it leads to decay—decay to death. Yet we cannot, without interest, watch the changes of the body as life naturally ebbs, changes by the materials are again given back to the inorganic world, and the progress by which brutes pass to annihilation and man to immortality. All the changes of natural decay are gradual approximations toward the inorganic world; So that each creature may be said to die through that series of changes which best fit it after death to supply its share in the economy of the world by keeping full the reservoir of the inorganic world, and capable of, again and again, passing through this cycle of changes until the final adjustment takes place

W.J. Mayo.

Fig. 2 — William J. Mayo manuscript paper dated March 8, 1882. (The Bichat referred to on the last page is Marie Francois Xavier Bichat (1771-1802) an eminent French anatomist and physiologist who is considered to be the founder of scientific histology and pathological anatomy.) (Typed version of the original.)

to implant ideals and scientific spirit in many men who in endless chains will carry on the same endeavor."² The influence of such ideals and philosophy shape

lives, build institutions and survive longer than the men who first held them.

References

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2. Braasch WF: Early Days in the Mayo Clinic. Springfield, IL, Charles C Thomas, p. 88, 1969.

Echoes from Our Past

An Unusual Remedy

JACK D. KEY, M.A., M.S.*

John Abernethy (1764-1831), English physician, surgeon, anatomist, physiologist, writer, and teacher, during his lifetime enjoyed a popular reputation and exercised great influence on his profession. He had an attractive personality and was possessed with a great power of dramatic exposition. He evolved and practiced a simplified general health care philosophy which seemingly held that all local diseases which are not the immediate consequence of accidental injury are the results of disorders of the digestive organs, and are all to be cured by attention to the diet, by small doses of mercury, and by purgatives. Expounding with much magnetic enthusiasm for his 'system' Abernethy would easily win full acceptance from his students. One former student recalled "We never left his lecture-room without thinking him the prince of pathologists, and ourselves only just one degree below him." Abernethy was a highly honorable man, generous to a fault, but bluntly independent. This independent manner and an almost calculated eccentricity fostered many strange stories about his dealings with colleagues and patients. One such story was recounted in the *Boston Medical and Surgical Journal* 2:191, 1829-30.

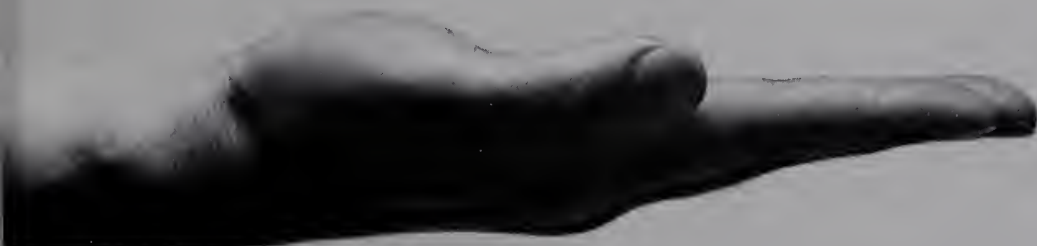
Abernethy. — The following is the last and best that we have heard of the above-named gentleman. We should premise, that the details of it are a little altered, with a view of adapting it to "ears polite"; for, without some process of this kind, it would not have been presentable. A lady went to the Doctor in great distress of mind, and stated to him, that, by a strange accident, she had swallowed a live spider. At first his only reply was, "whew! whew! whew!" a sort of internal whistling sound, intended to be indicative of supreme contempt. But his anxious patient was not so easily repulsed. She became every moment more and more urgent for some means of relief from the dreaded effect of the strange accident she had consulted him about; when, at last, looking round upon the wall, he put up his hand, and caught a fly. "There, Ma'am," said he, "I've got a remedy for you. Open your mouth; and as soon as I've put this fly into it, shut it close again; and the moment the spider hears the fly buzzing about, up he'll come; and then you can spit them both out together."

*Librarian, Mayo Clinic, Rochester, Minnesota.

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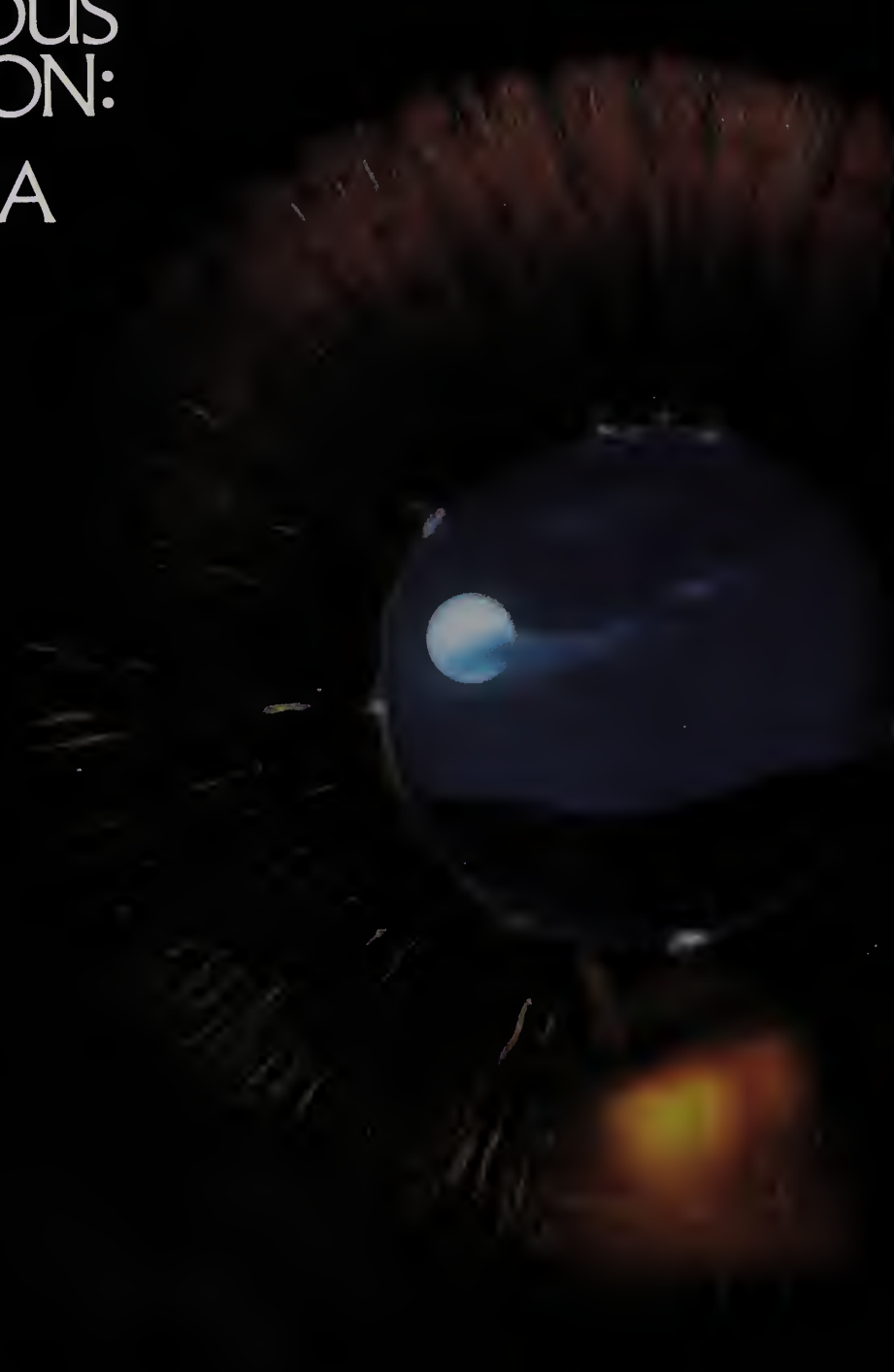


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ONE OF THE VITAL SIGNS OF ANXIOUS DEPRESSION: INSOMNIA

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agitation
anorexia
feelings of guilt
and worthlessness
fatigue
palpitations
headache
vague aches
and pains
sadness
psychic and
somatic anxiety



Artist's conception,
looking out from the human eye
as conceived in a schematic model.

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Limbitrol brings a special—and specific—quality of relief to most anxious depressed patients. Insomnia, for example, responds with particular promptness. Other symptoms likely to respond within the first week of treatment include anorexia, agitation and psychic and somatic anxiety. And, as the depression and anxiety are alleviated, in many cases so are such related somatic symptoms as headache, palpitations, and various vague aches and pains.

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Tablets 5-12.5 each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline
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(as the hydrochloride salt)

Specific therapy with h.s. dosage convenience

Please see summary of complete product information on following page.

LIMBITROL® TABLETS Tranquilizer—Antidepressant

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Relief of moderate to severe depression associated with moderate to severe anxiety

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving)

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies.

Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline; symptoms [including convulsions] similar to those at barbiturate withdrawal for chlordiazepoxide)

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated. Sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias at the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. IV administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly. Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses

How Supplied: White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10, Prescription Paks of 50

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Minnesota Medical Association

Role of Minnesota Ambulance Service Medical Advisors and Directors

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The Minnesota Medical Association's Emergency Medical Services Committee encourages physicians in the State of Minnesota to become involved with their local ambulance services. Revised state rules regulating ambulance services (which take effect November, 1982) require that all Basic Life Support (BLS) Ambulance Services have Medical Advisors; and that Advanced Life Support (ALS) Ambulance Services have Medical Directors. The Committee feels that physicians in the State should be made aware of both the advantages and responsibilities of serving in such capacities.

It should be apparent that improving the quality of pre-hospital emergency care rendered by ambulance services in Minnesota not only will be of benefit to the general public, but also to physicians. Patients will arrive at the hospital in better condition, and in some instances, those that would have died, will live. This general improvement in emergency patient care will have a positive effect on the ability of the patient's regular physician to render continuing care.

Serving as a Medical Director or Medical Advisor entails what? The chief function is to assure the patients receive high-quality pre-hospital emergency care and are not harmed because of the inappropriate action by pre-hospital emergency care personnel. Physicians should become familiar with the training levels of ambulance personnel in their area. By law, the State of Minnesota accepts the following training levels for individuals staffing ambulances:

Advanced First Aid — American Red Cross (ARC): Minnesota law allows drivers and attendants of BLS ambulances to function with only American Red Cross Advanced First Aid Certificates. However, the Red Cross course does not teach all of the basic skills and use of equipment required for BLS personnel. The Department of Health recommends Emergency Medical Technician (EMT) Training as the minimum. The Minnesota Medical Association's Committee on Emergency Medical Services recommends that

individuals with Advanced First Aid certification take additional training in basic cardiac life support, the use of oxygen and resuscitation equipment, and airway management skills as soon as possible.

Emergency Medical Technician (EMT): The 81-hour Emergency Care Course provides the basic skills necessary for certification as an emergency medical technician. The certification examinations which reflect national standards are conducted by the Minnesota Department of Health. To maintain an EMT certificate requires 24 hours of refresher training every two years. The Minnesota Medical Association believes that the minimum training desirable for an ambulance attendant is the EMT course. Ambulance services should encourage their members to achieve this level of training.

Emergency Medical Technician — Intermediate (EMT-I): Additional training provided in the Intermediate Emergency Care Course is available for individuals who are already emergency medical technicians. Additional training is included in human physiological systems and patient assessment; shock and intravenous (IV) fluid therapy, use of medical antishock trousers (MAST); instruction in the respiratory system and the use of the esophageal obturator airway (EOA). This additional training may be consistent with the needs of rural ambulance services where long transport times would make it advantageous to replace lost blood volume in patients suffering from traumatic shock. The Department of Health conducts examinations and certifies EMT-Is.

Paramedics: The Advanced Emergency Care Course is a detailed course consisting of 15 modules of advanced training including: intravenous fluid therapy, use of esophageal obturator airway, medical antishock trousers, electrocardiograph (EKG) rhythm interpretation, vital sign monitoring, heart defibrillation, and the administration of parental drugs. Intravenous therapy, including the use of medications, can only be performed by

paramedics under the direction of a licensed physician. The Department of Health conducts examinations and certifies paramedics.

What can the individual physician do to help his local BLS ambulance service? The physician can volunteer to be a Medical Advisor. The Minnesota Department of Health requires Medical Advisors for all BLS ambulance services to assure that high quality medical care is provided. The Department defines a Medical Advisor as a physician who*: (1) Provides advice on training and orientation of ambulance personnel; (2) Provides advice on updating and purchasing ambulance service equipment; (3) Provides triage, treatment and transportation protocols to assure that patients requiring care are transported to appropriate medical facilities; and (4) Develops and operates an internal quality assurance mechanism that includes the review of the services provided.

Medical Advisors may assure quality care by reviewing written run reports (ambulance crews fill these out for each patient transported), by meeting regularly with ambulance squad members to discuss problems and develop alternatives, and by providing follow-up information regarding patient outcome. Through such an educational processes physicians can play a positive role in improving the operation of their local Basic Life Support Ambulance Service.

Some Medical Advisors may wish to have their Basic Life Support Ambulance Services use advanced equipment such as: medical antishock trousers; the esophageal obturator airway; a cardiac monitor, defibrillator or intravenous infusion equipment. With the use of medical antishock trousers, Basic Life Support Services need only provide proper training and written authorization from their Medical Advisor before ambulance personnel can utilize the equipment. Other advanced equipment may be used only by Advanced Life Support Services and by Basic Life

Support Ambulance Services which have been granted a variance by the Commissioner of Health. To carry and use any advance emergency care equipment except medical antishock trousers, Basic Life Support Services must have a "Medical Director."

A physician who accepts responsibility to serve as a "Medical Director," takes on a greater responsibility than one who serves as a Medical Advisor. Department of Health rules which take effect in November, 1982, define a Medical Director as follows:†

"With respect to a Basic Life Support Transportation Service that has been granted a variance to perform a restricted treatment or procedure listed in 7MCAR §1.606 B., "Medical Director" means a physician who accepts responsibility for the quality of care given in the course of providing the restricted treatment or procedure who provides: (a.) Standards for training and continuing education with respect to the restricted treatment or procedure for which the variance was granted; (b.) Standards for the purchase of medical equipment and supplies necessary for the restricted treatment or procedure; (c.) Standing orders for performing the restricted treatment or procedure; and (d.) Regular review of the quality of care provided under the variance."

The Medical Director assures that all ambulance personnel using advanced equipment have been appropriately trained and understand when and how to use it properly. It is the Medical Director's responsibility to assure that appropriate documentation of this training is available for review by the Department of Health.

The Minnesota Medical Association and its Emergency Medical Services Committee encourages all interested physicians to become involved as Medical Advisors or Medical Directors. Please feel free to contact one of the authors for additional information, and a physician knowledgeable in the delivery of pre-hospital care will be contacted to work with you.

*Minnesota Life Support Transportation Service Rules 7MCAR §1.601 R.

†Minnesota Life Support Transportation Service Rules 7MCAR §1.601 T.

Annual Meeting
Minnesota Medical Association
Radisson South — Bloomington
May 18-20

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program; Primary sponsor; Location; Contact person.

October, 1982

3 Nephrology — Hematology; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

4-15 Cancer Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

5 Update on Poisoning; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

5-16 Annual Seminar for CME Directors; Minnesota Medical Association; Spring Hill Center, Wayzata; CONTACT Teresa L. Rogstad, MA, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

5-16 Sexual Attitude Reassessment Seminars; U of M; U of M Mpls.; CONTACT SAR Coordinator, Program in Human Sexuality, U of M, 2630 University Ave. SE, Mpls., MN 55414, 612/376-7520.

5-16 Eating Disorders; U of M Medical School; Registry Hotel, Bloomington; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

8 & 20 Basic Cardiac Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. SE, Mpls., MN 55422, 612/520-5454.

9 Emergency Medicine; Central Mesabi Medical Center; CMMC; CONTACT B. P. Owens, M.D., Mesaba Clinic, Hibbing, MN 55746, 826/262-3441.

10-22 Clinical Microbiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

10-23 Principles of Colon and Rectal Surgery; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

1-23 Sexual Attitude Reassessment Seminar; U of M; U of M Mpls.; CONTACT SAR Coordinator, Program in Human Sexuality, U of M, 2630 University Ave. SE, Mpls., MN 55414, 612/376-7520.

1-23 16th Annual Orthopaedic and Trauma Seminar; Hennepin County Medical Center; HCCMC, Mpls.; CONTACT Rose Jagodzinski, Hennepin County Medical Ctr., Orthopaedic Dept., 701 Park Ave. S., Mpls., MN 55415, 612/347-2812.

1-23 Emergency Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; Rodeway Inn, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

24 ENT for Primary Care Physicians; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

25-26 Today's Standard of Care: Family-Oriented Obstetrics; Cybele Society and several local hospitals; U of M, St. Paul Campus; CONTACT: Ruthie H. Dearing, The Cybele Society, 414 Peyton Bldg., Spokane, WA 99201.

25-27 Clinical Reviews; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

28-30 Clinical Laboratory Medicine for the Primary Care Physician; St. Paul-Ramsey Medical Center; SPRMC; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

November, 1982

4-5 Chemical Abuse Problems: A Practical Approach for Office Practice; U of M Medical School; St. John's Hospital, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center, Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

12 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

12 Quarterly Clinical Meeting; Minnesota Dermatological Society; St. Paul Ramsey Hospital; CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Mpls., MN 55415.

13 Fall Meeting, Minnesota Society of Anesthesiologists; L'hotel Sofitel, Mpls.; CONTACT: David E. Byer, M.D., 200 1st St. S.W., Rochester, MN 55901.

12-13 Common Problems in Medicine; St. Louis Park Medical Center Research Foundation; Marriott Hotel, Bloomington; CONTACT Elaine Anderson, St. Louis Park Med. Ctr. Research Foundation, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

(November Continued)

13 Fall Meeting, **Minnesota Society of Clinical Pathologists**; U of M Mpls.; CONTACT Eugenia Stamboulieh, MSCP, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

16 Orthopedics; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center, NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Neonatal Resuscitation; North Memorial Medical Center; NMMC; CONTACT: Milton E. Baker, M.D., 3220 Lowry Ave. No., Mpls., MN 55422, 612/520-5565.

19-20 Perspectives in Clinical Oncology for Primary Care Physicians; St. Joseph's Hospital; St. Joseph's Hospital, St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

20 Medical Aspects of Nuclear War; U of M Medical School; U of M West Bank, Mpls.; CONTACT: CME, U of M, Box 293 Mayo Bldg., 420 Delaware St. SE, Mpls., 55455, 612/373-8012.

December, 1982

1-2 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

3 15th Annual OB-GYN Symposium; North Memorial Medical Center; NMMC, Mpls.; CONTACT: Philip Marcus, M.D., 3220 Lowry Ave. No., Mpls., MN 55422, 612/588-0616.

3 Frontiers in Medicine; St. Joseph's Hospital; St. Joseph's Hospital, St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

4 Semi-annual Meeting; **Minnesota Obstetrical and Gynecological Society**; Minneapolis; CONTACT: Mrs. Cammy Kelley or Dr. Carolyn B. Coulam, Mayo Clinic, 200 1st St. SW, Rochester, MN 55905.

7 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

9-11 Coronary Heart Disease: A Comprehensive Review of Principles and Practice; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13 & 15 Basic Cardiac Life Support Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

14 Oncology; Central Mesabi Medical Center, Hibbing; CMMC CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746 218/262-4881.

15 Pediatrics; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

January, 1983

13 OB/GYN; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

27-February 11 South African Adventure; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Mpls., MN 55414, 612/378-1875.

29-February 5 Winter Seminar, **Caribbean Cruise**; Minnesota Academy of Family Physicians; San Juan; CONTACT: Chari Konerza, MN Academy of Family Physicians, 2221 Univ. Ave. SE, Suite 426, Mpls., MN 55414, 612/623-9559.

February, 1983

6-13 Jamaican Adventure; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Ste. 400, Mpls., MN 55414, 612/378-1875.

9-10 Drug Therapy Symposium; U of M Medical School; Location undetermined; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

9-11 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health & Safety; St. Paul-Ramsey Medical Center; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

11 Quarterly Clinical Meeting; **Minnesota Dermatological Society**; Hennepin County Medical Center; CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Mpls., MN 55415.

15 Psychiatry; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

17-18 Chemical Abuse Problems: A Practical Approach for Office Practice; U of M Medical School; St. Mary's Hospital, Mpls.; CONTACT: CME, U of M, Box 293 Mayo Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

19-26 Annual Meeting; **Minnesota Psychiatric Society**; Colorado; CONTACT: Joseph Westermeyer, M.D., Box 393, Mayo Bldg., U of M Hospitals, Mpls., MN 55455.

25-26 (Tentative) ENT Problems/**Primary Care**; U of M Medical School; Location undetermined; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

25-26 Interdisciplinary Approach to Treatment of the Critically Ill Patient; St. Paul-Ramsey Medical Center; Radisson Plaza Hotel, St. Paul; CONTACT: Ruth McIntyre, CME, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

For further information on *future* CME programs, contact Department of Education & Specialty Affairs, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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Classified advertising rates are forty (40) cents a word; minimum monthly charge \$10.00, key number, \$2.00 additional. Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, 2221 University Ave. S.E., #400, Minneapolis 55414.

Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

FAMILY PHYSICIAN SW Minnesota rural primary care group (8 FP, 2 Surgeons, 1 Pediatrician, 1 Internist) in agricultural-commercial-university town of 11,000 needs BE/BC FP to maintain and develop patient-oriented group practice. Recently completed hospital and clinic share facilities in medical complex. Usual Chamber of Commerce Claims nearly true here! C. P. Martin, M.D., Doctors' Plaza, Marshall, MN 56258 # (507) 532-9631.

PEDIATRICIAN — BC/BE to join a 12 doctor multi-specialty group, southern Minnesota community of 12,000 (Trade area 70,000). Fairmont is a progressive city with excellent schools and recreational areas around a chain of five lakes. First year salary guaranteed with full partnership after one year. Contact Don Grandgenett, Administrator, Fairmont Medical Clinic, P.A., Fairmont, MN 56031. (507) 238-4263.

OB/GYN SPECIALISTS. Enjoy the security of group practice with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

ORTHOPEDIC SURGEON urgently needed in progressive multi-specialty group. Salary negotiable. Numerous fringe benefits. All paid. Early partnership. Located in thriving agricultural community in northeastern North Dakota with excellent fishing and goose hunting. Send CV to Administrator, Lake Region Clinic, P.C., Box 1100, Devils Lake, ND 58301. All CVs held strictly confidential.

FAMILY PRACTICE PHYSICIAN/ or PRIMARY CARE ORIENTED INTERNIST — To join two family practice physicians and a Board certified Surgeon in a group practice. Located in a Community of 2,500 in Southwest Minnesota. This Medical Clinic is supported by a modern 30 bed acute care Hospital and 138 bed skilled long term care facility. Guaranteed first year income, will pay travel expenses for interview. Interested Physicians send curriculum vitae to William Wilson, Administrator, Springfield Community Hospital, P.O. Box 146, Springfield, Minnesota 56087 or call collect (507) 723-4215 for more information.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

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(continued from page 647)

1983 CME CRUISE/CONFERENCES ON LEGAL-MEDICAL ISSUES — Caribbean, Mexican Riviera, Alaska, Mediterranean. 7-14 days in January, April, July, August. Seminars led by distinguished professors. Approved for 18-24 CME Category 1 credits. **FREE ROUNDTRIP AIRFARE ON ALL CARIBBEAN, MEXICAN, ALASKAN CRUISES.** Excellent group fares on finest ships. All conferences, scheduled prior to 12/31/82, conform to IRS tax deductibility requirements under 1976 Tax Reform Act. Registration limited. For color brochures and additional information contact: International Conferences, 189 Lodge Avenue, Huntington Station, NY 11746. Phone (516) 549-0869.

ALL OF THE ADVANTAGES . . . An opportunity to practice primary care with a progressive group of physicians that values quality medicine, patient and family — centered practice, continuity of care, service to the community, and group compatibility in a location where the advantages of the Twin Cities are easily available but in a small town with the freedoms of a slower paced atmosphere.

This four-physician Family Practice is interviewing for two Family Practitioners to join the group to meet the patient needs in Glencoe and Lester Prairie, Minnesota. Glencoe is an ideal community — excellent schools, established industry and commerce, accredited hospital — and is only 53 miles from Minneapolis/St. Paul.

We welcome your interest and questions. Please contact Donald B. Rudy, M.D. or Gary Van House, Administrator, Glencoe Medical Clinic P.A. 525 East 18th Street, Glencoe, Minnesota 55336, (612) 864-3116.

INTERNIST, CERTIFIED, with subspecialty interest in gastroenterology or cardiology to eventually assume practice. Secure income. P. H. Soucheray, M.D., 2101 Beaser Avenue, Ashland, Wisc. 54806.

PATHOLOGIST for Locum Tenens — Board Certified (AP/CP) pathologist with experience in cytopathology seeks 1-2 week locum tenens position in Minnesota. Contact Stephen Bartold MD, 1536 Tenth Ave. S.E., Rochester, MN 55901. (507) 281-0377.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

DIRECTOR EMERGENCY MEDICINE, EMERGENCY MEDICINE PHYSICIAN — St. Mary's Hospital, Duluth, is seeking two physicians to join our Emergency Care and Trauma Center. St. Mary's is the designated Regional Emergency Medical Resource Hospital and Area-wide Trauma Hospital. Located at the head of Lake Superior in Northern Minnesota, Duluth is a community of 100,000 people with many and varied cultural activities, 3 Universities/Colleges, and outstanding recreational opportunities.

The Director of Emergency Physicians *must* be Board certified in Emergency Medicine and should have prior directorship experience. Director will coordinate activities of 5 other Emergency Physicians. Background in development of Regional E.M.S. system would be beneficial. E.D. staff physician candidates should also be Board certified or prepared, although others will be considered.

Salary and benefit package for both positions is competitive. Benefits include paid malpractice, health, life, disability, and dental insurances, one month vacation, 2 weeks C.M.E. program leave, all in a 36 hour work week.

St. Mary's is a 380-bed community/regional hospital with 20,000 Emergency visits per year. Hospital is physically connected to 100 member multispecialty Clinic. St. Mary's is the regional perinatal center and will soon institute a cardiac surgery program. Other major programs include orthopedics and oncology.

If either of these opportunities is of interest to you or you would like additional information, please call collect or send C.V. to: Mr. James Cherveney, Executive Vice President, St. Mary's Hospital, 407 East Third Street, Duluth, Minnesota 55805, (218) 726-4486. An equal opportunity employer.

OBSTETRICIAN/GYNECOLOGIST — Itasca Clinic, Grand Rapids, Minnesota. Need OB/GYN to join well-established, aggressive, multi-specialty group. Outstanding salary, benefits, facilities. Incomparable opportunity. Call or write: Ted Brill, Administrator, or R. G. Johnson, M.D., Itasca Clinic, 355 River Road, Grand Rapids, MN 55744. Call (Toll free in Minnesota) 1-800-662-5770 or 218-326-6613.

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OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

CENTRAL WISCONSIN, a 50 physician multi-specialty group has openings for physicians in the following specialties: Otolaryngology, OB/GYN, Cardiology, Neuroradiology and General Surgery with a fellowship training in Peripheral Vascular Surgery. Competitive first year salary, incentive plan thereafter. Comprehensive fringe benefits. New facility near new hospital. Located in beautiful, quiet, central Wisconsin metropolitan area of 65,000. Recreational opportunities abundant. For more information contact: K. L. Day, M.D., Wausau Medical Center, S.C., 2727 Plaza Drive, Wausau, WI 54401 or call collect (715) 847-3351.

FAMILY PHYSICIAN FOR PROGRESSIVE RURAL MINNESOTA CLINIC. New and superbly-equipped facility. A pleasant farming community in a physician shortage area, yet only 25 minutes from a metro area. A comfortable call schedule at nearby hospital. Gateway to Minnesota's famous lake country. Young and growing practice with excellent salary and benefits, ownership potential. Must be board-eligible. Call or write to Mr. David A. Nelson or Faris Keeling, M.D. at 218-354-2111 or write to Barnesville Area Clinic, P.O. Box 521, Barnesville, MN 56514.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

FAMILY PHYSICIAN to join group of six Board Certified Family Practitioners and one Board Certified General Surgeon. Liberal vacation and educational allowances. Competitive salary first year with incentive bonus, and full membership after one year. Blue Earth is a farming town of 4000 in Southern Minnesota with a drawing area of 25,000. 35 bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013. Phone: (507) 526-7371, Personal Phone: (507) 526-3177, Or Contact: Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

INTERNIST/NEPHROLOGIST Available 7/1/83. U. of Minnesota Medical school grad, 1973. Willing to do mostly general internal medicine with emphasis on kidney disease. Write: Minnesota Medicine (730), 2221 University Ave. S.E., Suite 400, Minneapolis, 55414.

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(continued on page 650)

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ASSOCIATE NEEDED by solo F.P. in community of 2000. 25 bed hospital — 58 bed nursing home. Excellent churches, schools, and social community. Guarantee with option to buy. Phone collect 612-237-2528 or write Gaylord Clinic, Ltd., Box 267, Gaylord, MN 55334.

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OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

PSYCHIATRIST AND FAMILY physicians needed at Moose Lake State Hospital, located in excellent fishing and hunting country and just 35 miles from Duluth. Salaries are competitive. Contact medical director Robert W. Schulz, M.D., Moose Lake, MN 55767.

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WANTED: Family Practice Doctor for team relationship with therapists and Pastoral counseling in church based health clinic. Contact Agora Clinic, 1220 No. Pascal, St. Paul, MN 55108, (612) 647-9269.

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PART-TIME EMERGENCY Services Medical Director position available. Department also serves as an ambulatory care center staffed by University residents. Experience as a primary care physician, demonstrated commitment and experience with emergency medicine necessary. Written responses with C.V. should be forwarded to: Sister Margaret Murray, Assistant Vice President, St. Mary's Hospital, Box 1019, Minneapolis, Minnesota 55440.

TEXAS NEEDS DOCTORS. Immediate openings for family physicians and anesthesiologist, emer. room, gen. surgery, internists, neurologist, ob/gyn, oncologist, ophthalmologist, orthopods, ent, pedis, pulmonologist and urologist in Dallas and other cities/towns throughout the state. Group or solo opportunities with generous guarantees where there is a need for additional physicians and other physicians will give you referrals. Vacancies available because of retirement. No state income or corporate taxes in Texas. No fee. Contact Texas Doctors Group, Box 177, Austin, Texas 78767 (512/476-7129).

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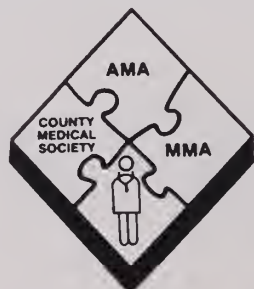
GENERAL OR FAMILY PRACTITIONER needed in West Central Minnesota community. Modern, well equipped hospital and attached clinic. Excellent schools and recreational opportunities. Service area: 12,000. Recruitment package offered. Send curriculum vitae and references to Physician Recruitment Committee, Swift County-Benson Hospital, Benson, Minnesota 56215.

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FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D. or Albert M. Sheldon, III, M.D., Winsted Clinic, P.A., Winsted, MN 55395 1-612-485-4151.

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effective against both major otic pathogens... with *b.i.d.* convenience

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For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β -hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: General: Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. *Blood dyscrasias:* Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. *Allergic reactions:* Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. *Gastrointestinal reactions:* Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. *CNS reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarthritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

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Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

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1. Rubin RH, Swartz MN: *N Engl J Med* 303:426-432, Aug 21, 1980. 2. Data on file, Medical Department, Hoffmann-La Roche Inc.

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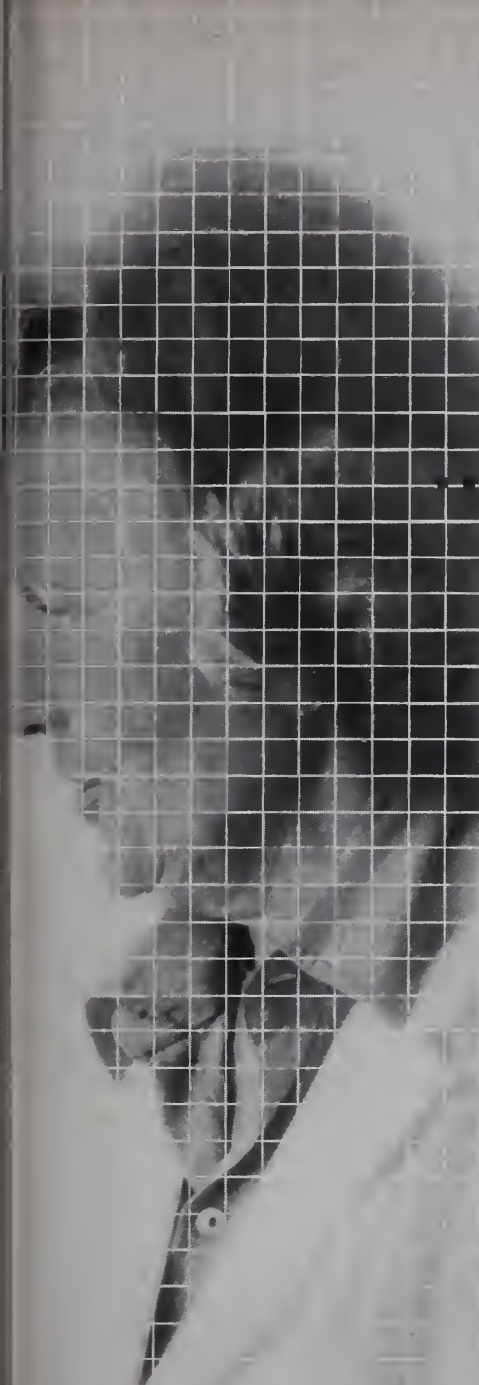
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Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication, abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence.

Usage in Pregnancy: Use of minor tranquilizers during first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed, drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation. The clearance of Valium and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported, should these occur, discontinue drug. Isolated reports of neutropenia, jaundice, periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect.

Adults: Anxiety disorders, symptoms of anxiety, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed, adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d., adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. **Geriatric or debilitated patients:** 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) **Children:** 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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President's Letter



Health Care and the Elderly

"To Grow Old is to Pass from Passion to Compassion"

Albert Camus
French Novelist

In the industrialized countries of North America and Europe, we are seeing an increasing number of people in the 65 and over age group. Now comprising 11% of our population, it is estimated that approximately 20% of the population will be in that age group by the year 2020. In spite of the fact that most elderly people are healthy and independent, it remains that this group occupies more than 90% of the long-term beds in our hospitals and nursing homes. Government sources cover the majority of personal health care expenditures for this group. Therefore, in this era of budget restrictions and deficits, it is imperative that we physicians contribute our skills to maintain and sustain the health and independency of these persons.

As medical students, the training is mainly hospital based. In this setting with its expensive technology, we center our attention on acute care: its diagnosis, treatment, and cure. This was emphasized in our training, and we carry this thinking into our practicing years. We are all proud of our skills and results in the acute case care.

Truly, the aged population suffers acute illnesses, but their major health problems are chronic and affect their capacity to function independently. Our training focuses on the acute illness, which is short termed and usually hospital based, to the detriment of their more chronic problems.

Most ear surgeons, I know, find it more exciting and gratifying to correct a hearing problem surgically, than to counsel a chronic profoundly hard-of-hearing person who cannot benefit from surgery.

So we enter medical school with the hopes of balancing the art and science of our chosen field, but leave with our minds filled with the ever increasing technology. The patient and the economic reimburse-

ment system also share this love of newer more sophisticated tools.

It follows that medical schools must improve the training of their students to allow more comprehensive management of this age group. It should not be construed as an anti-technology vendetta, but rather a plea for balance between acute and long term care.

Some studies indicate that perhaps 25% of nursing home patients could function independently if community resources were available. The traditional family role for caring for the elderly has changed, mainly because of demographics. Off-springs no longer remain in their home communities; daughters remaining at home are now employed; and because of increased aging, the off-springs themselves are in this age group with problems of their own.

There appears to be a philosophy of institutional care or no care at all when the community itself should rally its resources to support the older person. For some, a daily phone call may suffice. For others a daily delivery of one warm meal would allow the person to remain in his or her home.

In Minneapolis, the Lutheran Social Services has a program that allows the elderly to remain in the home. This allows a younger person or a couple who is matched by the Lutheran Social Services to live in with an elderly person. It is a shared financial responsibility, and the agency provides on-going supportive services to the people whom are matched. The important thing is to analyze each elder's needs and strive for the least restrictive environment possible.

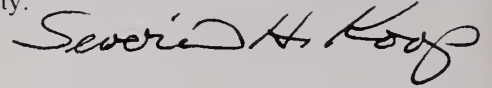
In the United States we have a nursing home program that exceeds \$16 billion in costs every year. A program with which everyone is not pleased. The costs will continue to rise, and the government will continue

PRESIDENT'S LETTER

to trim costs. There is already discussion of a "means test", requiring elderly people to demonstrate financial need before receiving Medicare benefits.

Better training of medical students in long-term care and community support appears to be the key factor in addressing the problem. As physicians we must integrate acute and long-term medical care with other

human services to improve the well being of our senior community.



Severin H. Koop, M.D.
President
Minnesota Medical Association



Minnesota Medical Association Auxiliary

The Minnesota Medical Association Auxiliary's health education project for this year will focus on Breast Self-Examination (BSE). The aim is to place a copy of the American Cancer Society's BSE poster in changing rooms of department stores and women's specialty shops, especially those with a lingerie area; girls' lavatories in middle, junior, and senior high schools and colleges; doctor's offices; and appropriate clinical areas in local hospitals.

In addition to posters, auxiliaries will extend their involvement with BSE in the following ways: setting up a training session with the American Cancer Society to train their own local BSE presenters; scheduling one-hour BSE programs for a monthly auxiliary meeting, and for women's clubs, church circles, reading groups, elderly housing or nursing homes; arranging a display at community libraries; and starting a BSE program for senior high girls in their areas.

Physicians may request a BSE poster(s) to hang in examining areas from Karen Tourdot, at the Auxiliary office, 2221 University Avenue S.E., Suite 400, Minneapolis 55414 (612) 378-1875. The posters carry the name and logo of the Minnesota Medical Association Auxiliary.



Editor's Notebook

Impressions of a Wellness Conference

October 8, YWCA, Nicollet Mall, Minneapolis, Minnesota — Today YWCA stands for “Your Wellness Conference of America.” The YWCA, you see, is where this international wellness conference — “Wellness — Taking The Next Steps” — is being held. I have just attended the day portion of the conference. Tonight Richard Schweiker, the U.S. Secretary of Health and Human Services, and his Deputy Assistant, Michael McGinnis, will speak on government’s perspective of Health and Wellness. I will miss their talks, but at least I can record my impressions of the conference so far.

The Program

I shall begin by showing you today’s program.

Introductions and Remarks	<u>Marilyn C. Nelson</u> , Chairperson SCANDINAVIA TODAY — MINNESOTA
Welcome and Recognition of Unique Wellness Models	<u>The Honorable Albert H. Quie</u> , Governor, State of Minnesota
Opening Remarks	<u>His Majesty King Olav V of Norway</u> <u>Tor Dahl</u> , Adjunct Professor, School of Public Health, University of Minnesota and Chairman, Special Projects Committee, Minnesota Council on Health Promotion and Wellness <u>Whelock Whitney</u> , Chairman Minnesota Council on Health Promotion and Wellness
Project Oppland — A Fifty-Four Community Health Promotion Effort in Norway	<u>Sonja Stenmarck</u> , Information Director, National Society for People’s Health, Oslo, Norway
Community-Based Prevention of Heart Disease: The North Karelia Project	<u>Jukka Salonen, M.D.</u> , Principal Investigator, North Karelia Project, Kuopio, Finland
Uplandica	<u>Owe Thornquist</u> , Founder, Uplandica, Uppsala, Sweden
Get High On Yourself An Alternative to Drugs	<u>Joe Walton</u> , Executive Vice President, Get High On Your- self Foundation, Los Angeles, California
Scandinavian Approaches Leading to Dramatic Reductions of Traffic Accidents, Injuries and Fatalities	<u>John Arild Jenssen</u> , Secretary, Nordic Road Traffic Safety Board, Oslo, Norway
Successful Scandinavian School Health Promotion Programs	<u>Annika Sedvall, M.D.</u> , Chief Medical Officer, School Health, The National Swedish Board of Education, Stockholm, Sweden
Wellness in the Workplace, Scandinavian Style	<u>Leif Wallin, M.D.</u> , Medical Director, Volvo, Gothenburg, Sweden
Wellness in the Workplace, American Style	<u>George Pfeiffer</u> , Program Manager, Xerox Health Management Program, and President Elect, American Association of Fitness Directors in Business and Industry, Webster, N.Y.
American Health Promotion Initiatives	<u>Henry Blackburn, Jr., M.D.</u> , Director, Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis

The Scandinavians

As you can see, Scandinavians and Scandinavian-Americans dominated the program. Which made sense. The *Scandinavia Today – Minnesota* organizers were putting on this show. The organizers invited 125 participants. Participants included politicians, government bureaucrats, practicing physicians, coaches, public health officials, health promotion entrepreneurs, corporation presidents, health benefit managers, economists, epidemiologists, exercise physiologists, nutritionists, state legislators, company medical directors, university faculty members, heads of service organizations, and school teachers. The conference culminated Wellness Week, which was kicked off by the Twin Cities Marathon on October 3 — a fitting beginning.

The Chairman

I am here at the invitation of the Conference Chairman, Tor Dahl — a native Norwegian, a health care economist at the School of Public Health at the University of Minnesota, a former contributor to MINNESOTA MEDICINE¹, and for the last 20 years, an enthusiastic Minnesotan. He had read my September MINNESOTA MEDICINE article² and thought the program would intrigue me. Tor did a splendid job today coordinating, introducing, clarifying, and quipping his way through the program. As a Norwegian turned American, he was ideally qualified to shuttle back and forth between the American and Scandinavian points of view.

The Big Ideas

Among today's participants, more than one remarked an international conference on Wellness wouldn't have been possible five years ago. Now, thanks to a boost from continuing health care inflation and lack of money to pay for it, there's no question the big ideas — (1) that we are responsible for our own health; (2) that we are what we eat, drink, exercise, or abuse; and (3) that we can control and improve our well-being — are sweeping the country. A word of caution. As one participant remarked, the Wellness Movement is still largely an upper middle class phenomenon — prevalent among educated classes, but not widely diffused. It is not as widespread as its enthusiasts would have you believe.

The Big Deal

So what, you may ask, is the big deal? As physicians, we have always known our health reflects our habits and disease evolves from its precursors. Indeed, as Dubos wryly noted in 1959: "It is part of the doctor's function to make it possible for his patients to go on doing the pleasant things that are bad for them — smoking too much, eating too much, drinking too much — without killing themselves any sooner than necessary."³

What has happened to change that attitude? Mainly two things: (1) soaring health care inflation these last 20 years; and (2) repeated demonstrations in various Western countries that mass publicity with the right educational and motivational techniques can sensitize people enough for them to alter bad health habits. This change lessens their chances of developing chronic diseases and increases their longevity. The physician's new mission, to use the current slogan of the Wellness people, is to help others "to die as young in life as late as possible".*

Impressions

1. Wellness is an easy concept around which to rally a coalition. The World Health Organization has legitimized the word "wellness" with its definition of "health": "The state of complete physical, emotional, and social well-being." And, as everybody knows,

*I understand this new slogan is actually an old Chinese proverb, which proves if you hang around long enough, what is old-fashioned becomes new-fangled.

the healthier you feel, the greater your sense of "wellness." There is something in Wellness for everybody. For politicians, Wellness is as unassailable as Apple Pie and Motherhood. For economists, promoting today's Wellness makes more sense than paying for tomorrow's sickness. For nutritionists, physiologists, and psychologists, Wellness affords an opportunity to apply hard-earned skills to solve Real World problems on a large scale. For epidemiologists and other public health experts, Wellness is a mainstream movement that draws directly on their knowledge. For positive thinkers, media specialists, and motivation experts, Wellness is an ideal avenue for changing the way people behave. And, for everybody, Wellness is a useful mechanism for attacking the "life-style disorders" of Western Civilization with its baleful consequences — hypertension, arteriosclerosis, drug addictions, and environmentally-induced cancers. Besides, Wellness covers a lot of sins. To jog your memory, here's a full list of life's bad habits with their effect on health:

1. Drugs

- (a) alcohol addition: leading to cirrhosis of the liver, encephalopathy and malnutrition,
- (b) social excess of alcohol: leading to motor vehicle accidents and obesity,
- (c) cigarette smoking: causing chronic bronchitis, emphysema and cancer of the lung, and aggravating coronary-artery disease,
- (d) abuse of pharmaceuticals: leading to drug dependence and drug reactions,
- (e) addiction to psychotropic drugs: leading to suicide, homicide, malnutrition and accidents,
- (f) social use of psychotropic drugs: leading to social withdrawal and acute anxiety attacks.

2. Diet and Exercise

- (a) over-eating: leading to obesity and its consequences,
- (b) High-fat intake: possibly contributing to atherosclerosis and coronary-artery disease,
- (c) High carbohydrate intake: contributing to dental caries,
- (d) fad diets: leading to malnutrition,
- (e) lack of exercise: aggravating coronary-artery disease, leading to obesity and causing lack of physical fitness,
- (f) malnutrition: leading to numerous health problems,
- (g) lack of recreation and lack of relief from work and other pressures: associated with stress disease such as hypertension, coronary-artery disease and peptic ulcers.

3. Others

- (a) careless driving and failure to wear seat-belts: leading to accidents and resultant deaths and injuries,
- (b) promiscuity and carelessness: leading to syphilis and gonorrhea.

2. Wellness is a traditional, conservative, back-to-basics movement. In a sense, it is a reaction against the cost of modern medicine and its failure to assure health. As Sonja Stenmarck, who heads the National Society for People's Health in Oslo, noted: "Pouring more money into medical service organizations will not improve the people's health."

To show benefits of good health habits, Wellness people are fond of reciting Breslow's seven rules of good health: (1) three meals a day, no snacks, (2) breakfast every day; (3) moderate exercise two or three times a week; (4) seven or eight hours of sleep a night; (5) no smoking; (6) moderate weight; and (7) alcohol in moderation only.

These rules were used in a 1973 study by Breslow, Dean of the School of Public Health at California. He showed that a 45-year-old man who followed six or seven of these rules had a life expectancy of 33.1 more years, while his 45-year-old male counterpart, who practiced 0 to three of the rules, would live for 21.6 more years.

The question in the business world is: "How much is the practical advice embodied in these rules worth?" Corporation managers, who are responsible for evaluating and implementing wellness programs in industry, are fanning out around the country and participating themselves in existing programs. In doing so, they are trying to answer that very question. In general, what they are finding is that comprehensive health promotion programs vary from about \$300 to \$3000 per person — a price that restricts their use to executives.

These comprehensive programs are not without their ironies. The one at the Pritikin Longevity Institute in Santa Barbara consists basically of a return to a primitive "hunter-gatherer" life — no refined foods, plenty of fruit and vegetables, and large daily

doses of running or walking.

3. Wellness is an idea fraught with intangibles. During the breaks today, managers who were considering introducing health promotion programs, repeatedly commented to me about "intangibles" and lack of data related to the "bottom line." One facetiously said: "When I start my health promotion company, I'm going to call it *Bottom Line Inc.*"

In any event, businessmen's uncertainty increases when this uncertainty deals with programs yielding "soft data" (i.e., motivational seminars to change deeply ingrained habits) and unmeasurable concepts (e.g. How do you measure "Wellness"?). Although the idea of Wellness is intuitively pleasing and seems to favorably effect productivity, absenteeism, and health costs, corporations have little hard data to support their intuitions. Besides, they are cautious from previous experiences with open-ended health costs. Why replace this experience with open-ended Wellness costs? For these reasons, Wellness programs are tough to sell to hard-nosed Corporation Executive Officers. Adding to this difficulty are the varying types of health promotion programs. These include programs for weight loss, cigarette cessation, stress reduction, better diet, improved fitness, positive health attitudes, hypertension control, alcohol treatment, personal or family counseling, prevention of back injuries, and early disease recognition (screening). With what program do you begin and with which one do you end? To make the decision even harder, employees and management may emphasize different programs.

4. On the whole, Wellness programs are doing well in Scandinavia and Minnesota. In Scandinavia, anti-smoking campaigns, mandatory seat belt use, tough drunk driving laws, anti-drug advertising, and community-wide educational efforts to reduce coronary risks are all matters of national policy, supported by most citizens. The results have been impressive (30 percent drop of coronary deaths in Finland, 33 percent drop in traffic deaths after mandatory seat belts use in Norway, and roughly 50 percent less traffic fatalities from all causes in the Nordic countries than in the U.S.).

Minnesota is the second state in the U.S. to have a Health and Wellness Council and will be the first in which the Governor delivers an annual "State of the State's Health" address. The Minnesota State Health Department and the Minnesota Center of Health Statistics have eased the Governor's task by compiling a new book "Healthy People: The Minnesota Experience." This book, fresh from the printer, was handed out to the participants of the conference. Through the use of this book and by defining and concentrating on Minnesota's major health problems, Minnesota aims within two years to become the healthiest place in the world to live. Already about 50 percent of Minnesota corporations employing over 200 people have at least one type of health promotion program. We now rank second in the states in longevity (after Hawaii) and are closing fast on the Nordic countries. We are ahead of everybody in some respects. For example, if you are a middle aged male in Minnesota, your chances for a long life are now greater than any Scandinavian country, Germany, Poland, Canada, or elsewhere in the United States (see table, from "Healthy People: The Minnesota Experience").

Remaining Years of Life at Selected Ages by Sex
Minnesota, United States, and Selected Countries

	At Age	Years of Life Remaining					
		Males			Females		
		45	55	65	45	55	65
Minnesota 78 (Data Year)		31.8	22.8	15.1	37.5	28.1	19.3
Denmark 76		29.1	20.8	13.6	33.9	25.2	17.2
Finland 74		25.9	18.3	11.9	32.9	23.9	15.7
Norway 76		30.0	21.5	14.2	35.3	26.2	17.7
Sweden 76		30.1	21.5	14.0	35.1	26.0	17.5
Poland 75		26.6	19.6	12.8	33.0	24.1	16.1
German Democratic Republic (E. Germany) 76		27.7	19.3	12.1	31.9	23.0	14.8
German Federal Republic (W. Germany) 75		27.5	19.3	12.2	32.7	23.9	15.7
Canada 74		28.9	20.7	13.8	34.9	26.1	18.0
United States 76		28.4	20.4	13.7	34.5	25.8	18.0

SOURCE: Minnesota Department of Health,
Minnesota Center for Health Statistics

5. For practicing physicians, Wellness is still a concept approached with caution. Why? In the first place, to paraphrase Somerset Maugham, nothing brings you so close to reality as being a physician. Most of us have seen enough patients to be skeptical that bad habits can be changed easily by simple promotion. Second, public campaigns to change mass behavior seem remote from the one-on-one approach of private practice. Third, disease prevention and health promotion are often regarded as tedious, unproductive, and unrewarding. Fourth, treating and diagnosing disease, rather than "selling health", are what doctors are for⁵. Fifth, the benefits of vigorous clinical intervention by physicians to control risk factors and prolong life are far from scientifically proven, as evidenced by recently published results of the ten year 115 million NIH sponsored Multiple Risk Factor Intervention Trial.⁶ And sixth, Wellness programs are often put forth as an alternative to traditional health care and the language used by Wellness proponents is not always flattering to physicians. These were the words appearing on a poster at the Wellness conference:

"The usual executive physical exam is an expensive annual documentation of one's declining health.

Most executives undergo an annual ritual known as the physical. Evaluations of fitness, nutritional habits, stress management, and other life style factors important to health are not systematically included in the usual exam. When the exam is concluded, the executive may be admonished to lose weight, or to stop smoking, but is usually given a pat on the back and asked to return the following year for a repeat evaluation. The likelihood of significant health habit improvement is low."

6. Talk about a "Wellness Industry" is premature. Perhaps it's simply because Wellness is new. Whatever the reason, the "industry" is not quite in focus and is often superficial and fragmented in its approaches. Right now it varies from Motivational Campaigns to "Get High on Yourself" and "Take Charge of Your Life" to jogging, to executive fitness centers, to a West Coast confection called Tibetan Gong Meditation.

I'm reminded of Lewis Thomas's warning about another "Industry" (Substitute the word "wellness" for "health". in this passage, and you'll get the drift of what I'm saying).

"It has become something of a convenience to refer to the whole endeavor as the "Health Industry." This provides the illusion that it is in a general way all one thing, and that it turns out, on demand, a single, unambiguous product, which is health. Thus, health care has become the new name for medicine. Health-care delivery is what doctors now do, along with hospitals and other professionals who work with doctors, now known collectively as the health providers. The patients have become health consumers. Once you start on this line, there's no stopping."⁷

Concluding Remarks

Still, as I indicated in my September editorial, I believe the medical profession ought to support wholeheartedly the Wellness Concept and to learn from it. From the talks by Scandinavian officials, I was impressed that a thoughtful community-wide effort to reduce coronary risks, to cut smoking rates, to curtail driving and drinking, and to make people buckle up, has measurable, and often dramatic, health benefits.

In his concluding remarks, Doctor Henry Blackburn said we have much to learn from the Scandinavians about using existing resources to heighten healthy awareness. Compared to the Scandinavians, Americans tend to substitute technological brawn for existing societal skills, not to gather facts thoroughly, to be impatient in evaluative processes, to followup results inadequately, to attack complex problems in fragmented ways, and not to sustain efforts over the long haul. Any major health improvement effort, Blackburn added, demands multiple risk factor evaluation, multiple stages of development (alerting, educating, motivating), multiple educational efforts, a community wide effort, mass media support, systematic evaluation, and longterm followup. He indicated changing our

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metabolic legacy, our evolutionary habits, and contemporary life style won't be easy. I agree. Nobody ever promised achieving and maintaining health was a rose garden.

Richard L. Reece MD

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Continuing Medical Education St. Joseph's Hospital

Perspectives in Clinical Oncology for the Primary Care Physician, November 19-20 is designed to provide a very practical learning experience for all physicians dealing with the difficult problems associated with recognition and management of patients with malignancy.

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The Second Annual Frontiers in Minnesota course will be presented on Friday, December 3. This program is designed to present recent advances in the understanding of disease that can be applied to practical clinical care.

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Microsurgical Replantation and Revascularization of the Crushed or Avulsed Thumb

CHARLES J. MacDONALD, M.D.* and CHRIS P. TOUNTAS, M.D.*

This is a series of 11 consecutive thumb injuries, six which were completely detached and six completely devascularized. These injuries were all crushing or avulsion type. The methods of treatment and results are given. The overall survival rate of those completely amputated was 67% and of those devascularized, 60%.

THE REPLANTATION and/or revascularization of devitalized parts has become a well established procedure since the advent of microsurgical techniques which employ suitable magnification, ultra-fine suture and delicate instruments, and personnel trained in performing microsurgical procedures.

Since 1976, with the assistance of the local private hospitals, we have been actively involved in the replantation and revascularization of the devitalized extremity and its parts.

Currently appropriate parameters to be considered in selecting patients for replantation or revascularization include: age, occupation, handedness, mechanism, and level of injury, type of wound, and time elapsed since devascularization. While some controversy still exists concerning secondary or tertiary indications for replantation or revascularization, and while most microsurgeons agree that single digits should not routinely be replanted, one primary indication for microsurgical revascularization which remains foremost is a severe injury to the thumb. Because of the paramount importance of the thumb in the function of prehension and because of the generally inferior results of secondary thumb reconstruction, microsurgical replantation or revascularization should be attempted whenever possible.

Fortunately with current microsurgical techniques and expertise successful restoration of function in the sharply severed or cleanly devascularized thumb has become a surgical commonplace, with survival rates approximating 90% in most published series.

Salvage of the severely crushed or avulsed thumb, however, is a much more challenging and difficult problem.

In this communication we present the results of treatment of 11 thumbs completely devascularized by severe crushing or avulsing injuries treated since



Fig. 1 — Avulsed thumb in tractor power take-off. (Case 4)



Fig. 2 — Replanted, functional thumb. (Case 4)

*Hand surgeons, St. Paul, Minnesota.

1976, each with a minimal follow-up period of six months.

All injuries occurred in males. The patients average age was 19. Six injuries involved the dominant hand, five involved the nondominant. Six injuries occurred in power take offs or drive shafts; one in a cycle sprocket. Three were the result of circumferential crushing, and one was a ragged nontidy saw amputation. Six injuries occurred through the metacarpo-phalangeal joint, three through the proximal phalanx, one proximal to the metacarpo-phalangeal joint, and one through the interphalangeal joint. Six thumbs were completely severed, five were completely devascularized but attached by some residual tissue.

We present the complete series here to identify the technical difficulties and problems associated with these severe injuries.

Case Reports

Case 1

A 13-year-old male sustained an auger injury to the left hand and wrist with a double level injury. There was a fracture of the distal radius and ulna and a complete avulsing amputation of the thumb at the metacarpo-phalangeal joint.

Under general anesthesia the metacarpo-phalangeal joint was arthrodesed. Arterial circulation was restored by re-anastomosing a digital artery. No veins were suitable for repair, or grafting. The digit became gangrenous and was amputated. The radius and ulna fractures healed satisfactorily.

Case 2

A 14-year-old sustained a circumferential laceration at the base of the right thumb while loading a boat. The only intact structure was the flexor pollicis longus. The digit was without circulation.

Under general anesthesia the metacarpo-phalangeal joint was arthrodesed. Repair of the ulnar digital artery and one dorsal vein supplied immediate revascularization.

Subsequently he underwent a secondary neurothaphy of the radial and ulnar digital nerves. Recent examination showed no active interphalangeal or metacarpo-phalangeal joint motion. He can distinguish sharp from dull and hot from cold. The skin is moist to the touch and two point discrimination is greater than 2 cm. He works as a laborer and is able to tolerate cold.

Case 3

An 18-year-old male amputated the distal phalanx of the right thumb in a cycle sprocket. Utilizing regional block anesthesia the interphalangeal joint was arthrodesed. Circulation was restored by anastomosing one digital artery and a dorsal vein. The radial digital nerve was also repaired.

The patient presently is working as a carpenter's helper. He can distinguish sharp from dull and moving touch on the radial side of the thumb. Two point discrimination is 15 mm. There is no motion at the interphalangeal joint and 20 degrees of flexion of the metacarpo-phalangeal joint. The patient states "he uses the thumb a lot".

Case 4

A 26-year-old right-handed farm laborer sustained a complete amputation at the metacarpo-phalangeal joint in a power take off. Under regional block anesthesia the metacarpo-phalangeal joint was arthrodesed. One digital artery and two dorsal veins were repaired. Subsequent reconstruction necessitated a tendon

transfer for thumb flexion and sural nerve grafts to the digital nerves.

The patient is able to button his clothes, use a key, write and recognize hot and cold touch. Two point discrimination is greater than 15 mm. The interphalangeal joint is ankylosed at 25 degrees and there is no active or passive motion of the metacarpo-phalangeal joint. Presently he continues to farm.

Case 5

An 18-year-old male sustained an avulsion of the right thumb in a power take off of a tractor. There was an avulsion of the flexor and extensor pollicis longus tendon, disruption of the metacarpo-phalangeal joint, and avulsion of the neurovascular bundles. Only a dorsal small bridge of skin remained. The digit was devascularized.

Utilizing regional block anesthesia the metacarpo-phalangeal joint was arthrodesed. One artery was repaired. Three months later he underwent sural nerve grafting of the digital nerves.

The latest follow-up demonstrated two point discrimination greater than 50 mm. and interphalangeal joint motion 15 degrees to 75 degrees. He has returned to work as a laborer.

Case 6

A 15-year-old avulsed the right thumb in a power take off. The injury caused an almost totally circumferential laceration at the metacarpo-phalangeal joint level with avulsion of the neurovascular bundles.

At surgery the metacarpo-phalangeal joint was fused. The ulnar



Fig. 3 — Avulsed thumb with flexor and extensor pollicis longus tendons. (Case 5)



Fig. 4 — Revascularized thumb. (Case 5)

digital artery and dorsal vein were anastomosed. The digit post-operatively was pink and warm. Subsequent anticoagulation with Heparin produced extensive bleeding. Once the Heparin was stopped the digit became necrotic and was amputated. The patient refused further reconstructive surgery.

Case 7

A 38-year-old male sustained an avulsing amputation of the thumb at the proximal phalanx level in a drive shaft. Utilizing regional block anesthesia the fracture of the proximal phalanx was openly reduced and internally fixed. Restoration of vascularity consisted of the ulnar digital artery and two veins. The replantation failed after Heparin was discontinued because of excessive bleeding and the thumb was amputated. Thumb reconstruction consisted of a tube groin flap and a bone graft. The patient refused pollicization of the index finger or toe to hand transfer. Presently he works as a farm laborer, with thumb function adequate for his job.

Case 8

A 16-year-old male vacationer sustained a ragged untidy saw amputation of the left thumb. Associated injuries consisted of a complete transection of the index flexor tendons and radial neurovascular bundle.

Under general anesthesia the metacarpo-phalangeal joint was fused. To restore circulation a vein graft from the proximal radial to the distal ulnar digital artery was utilized. A dorsal vein was similarly vein grafted. There was no primary repair of the tendons or nerves of the index finger. Subsequent reconstruction in the patient's home state has consisted of sural nerve grafts to the digital nerves of the thumb and index finger, release of a first web space adduction contracture with a dorsal flap and index finger flexor tendon reconstruction utilizing a tendon transfer. The last report from his present surgeon indicates he is progressing satisfactorily.

Case 9

A 14-year-old farm boy injured his dominant thumb in a tractor power take off. The thumb was devascularized but there was a small dorsal skin bridge remaining. The flexor and extensor pollicis longus were intact.

Utilizing an axillary block the metacarpo-phalangeal joint was arthrodesed. Circulation was restored utilizing a vein graft to a digital artery. The dorsal skin bridge contained two functioning veins. The thumb remained viable for four days, then became necrotic and was amputated. Further reconstruction is currently deferred at the patient's request.

Overall, 64% of these crushed or avulsed thumbs survived; 67% of

those completely amputated, 60% of those devascularized but incompletely amputated.

Case 10

A 14-year-old caught the right upper extremity in a tractor power take off. The radius and ulna were fractured and the thumb was completely avulsed at the base of the proximal phalanx. The forearm fractures were treated closed and the thumb replanted. The digital arteries, tendons and nerves were avulsed from the proximal segment of the thumb. Arterial supply was reconstituted by using the radial digital artery of the index to the distal arterial segment of the thumb. Two in situ dorsal veins were also repaired. Postoperatively he was maintained on Rheomacrodex and aspirin. The fractures healed. Tendon and nerve reconstruction is anticipated.

Case 11

A 23-year-old injured the left hand in a power shear. There was a compound fracture of the index metacarpal and the thumb was non-viable with a small ulnar skin bridge, fracture of the proximal phalanx and transection of the flexor and extensor tendons. The bone was stabilized with wires and tendons were repaired. The ulnar digital artery and a dorsal vein were repaired with good viability. Postoperatively he received Rheomacrodex and aspirin.

In the early part of this series as in other published series frequent difficulties were encountered with the use of Heparin. As a result, Heparin was discontinued and a combination of intravenous low molecular weight Dextran and oral aspirin was begun and has provided more satisfactory results. When age permits, regional block anesthesia with a long acting local anesthetic provides adequate anesthesia for even the most lengthy procedures, and decreases the morbidity of prolonged general anesthesia.

Crushing or avulsing injuries do not always allow repair of ideal complements of arteries and veins. Technical compromise is frequent. Liberal use of vein grafts and secondary procedures to restore sensation and motion where primary repair is impossible is indicated to improve the survival rate and function of severely crushed and avulsed thumbs.

Continuing Medical Education Scientific/Ski Meeting

The Northwestern Medical Association convenes for its 36th Annual Meeting at Sun Valley, ID, from February 7 to 11, 1983. Transplants-implants, general medical subjects, ski-injury prevention, high-altitude physiology and financial planning will be discussed by experts. Approved for 10 CME Category I credits. Registration 3 to 5 p.m. on February 7, Challenger Inn, Sun Valley. Non-members registration \$100. For information, write to Norman Christensen, M.D., 2456 Buhne Street, Eureka, CA 95501 or phone (707) 443-2248.

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Management of Scalping Injuries

MARK ODLAND, M.D.,* ALLEN VAN BEEK, M.D.,† and BRYAN HUBBLE, M.D.†

The management of scalping injuries is reviewed and a case of microvascular replantation is presented. With microsurgical techniques available, we feel that replantation is the procedure of choice.

HISTORICALLY THE treatment of traumatic avulsion of the scalp has been fraught with a high morbidity and significant mortality rate. The advent of microsurgical techniques has made microvascular replantation of the avulsed scalp the preferred method of treatment when feasible. Presented here are representative cases, a review of treatment modalities utilized in the past, and a suggested classification of scalping injuries.

Case Report

A 28-year-old woman was transported to the Hennepin County Medical Center Emergency De-

partment following a motor vehicle accident in which she was thrown from the vehicle. At the scene, she had been unconscious for a short period of time. Upon arrival to the Emergency Department, her blood pressure and pulse had remained stable. The patient was awake but intermittently agitated and confused. Examination of her head revealed a large avulsed segment of scalp extending from mid-forehead to the occiput with the lateral margins being just superior to the right ear and 5 centimeters above the left ear. Eighty percent of the scalp was amputated. The periosteum was stripped from the skull in two areas, one measuring 5 by 5 centimeters and the other 2 by 3 centimeters. Her face sustained severe abrasions and lacerations, and a portion of her right ear lobe was

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Fig. 1 — Along with the large scalp defect, severe facial lacerations and abrasions were present.



Fig. 2 — The undersurface of the avulsed scalp when received in the Emergency Department.



Fig. 3 — The scalp and patient prior to replantation. (Type IV injury)

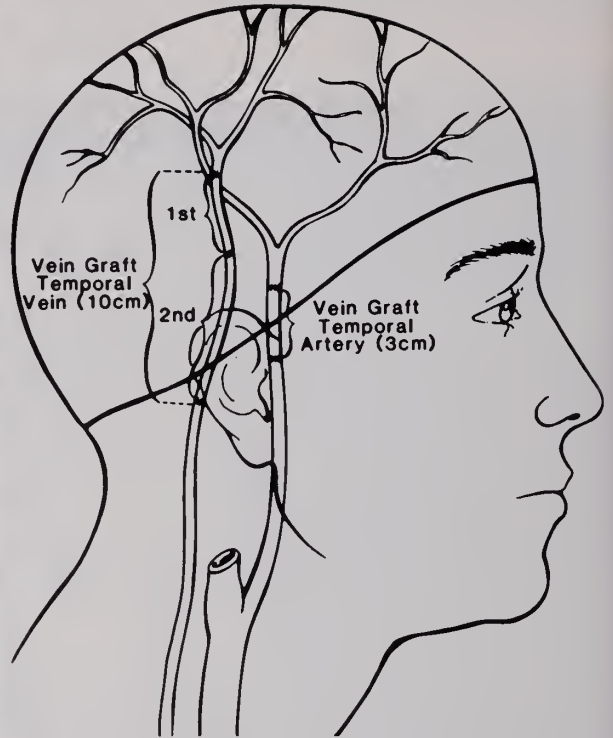


Fig. 4 — To bridge the gap, vein grafts were used, one 3 centimeter length for the artery and 2 grafts totalling 10 centimeters for the venous reconstruction.



Fig. 5 — (A-left) and (B-right) Hair growth at 6 months.

missing. (Figure 1). Neurosurgical evaluation for concomitant head and neck injuries included: CT scan of the head and tomograms of the cervical spine, both of which were normal. The remainder of her physical, radiological, and laboratory examination was normal.

Initially the avulsed segment of scalp did not accompany the patient. The police were asked to return to the scene and search for the scalp which was found entangled in a bush (Figure 2). They placed the scalp in a plastic bag packed with ice and brought it to the hospital. The scalp was then replanted during a 12 hour surgical procedure (Figure 3). The right superficial temporal artery and right posterior auricular vein were selected for anastomosis (Figure 4). Using microsurgical techniques, arterial circulation was established by using reversed interposition vein grafts which were harvested from the dorsum of her foot. Following arterial repair, there was excellent perfusion of all areas of the avulsed scalp evidenced by color change and copious bleeding from the wound edges. The venous reconstruction was complicated because of difficulty detecting injured venous endothelium. After repeated vein resection and repairs, successful completion was finally achieved by using two vein grafts to span a 10 centimeter gap created by resecting damaged vein. Fourteen units of blood were transfused during the perioperative period because of the delay in venous repair. A single dose of systemic Heparin was given intraoperatively, but was not continued postoperatively. Postoperatively hair growth was noted on the third day. Her postoperative course was unremarkable, and she was discharged on the tenth postoperative day. Six months following replantation, hair growth was excellent and camouflaged scalp scars (Figures 5A and B).

Discussion

Accidental traumatic avulsion of the scalp is an injury that was virtually unheard of before the industrialization of society. Most avulsions are sustained by the hair becoming entangled in a machine with a rotary mechanism or by a direction shearing force. The scalp is usually avulsed from areas of bony prominence above or below the eyebrows anteriorly, above the ears laterally, and a variable occipital extent (Figure 6). The depth of avulsion is commonly in the fatty epineurotic area between galea and periosteum (Figure 7).

The scalp has a rich vascular supply from four paired arteries. The superficial temporal, posterior auricular, and occipital arteries are branches of the external carotid artery, while the supraorbital artery is a branch

from the internal carotid artery. All of these vessels have abundant communications with each other and cross the midline. These vessels also provide supplemental blood supply to the intracranial meningeal vessels. The venous drainage of the scalp is through

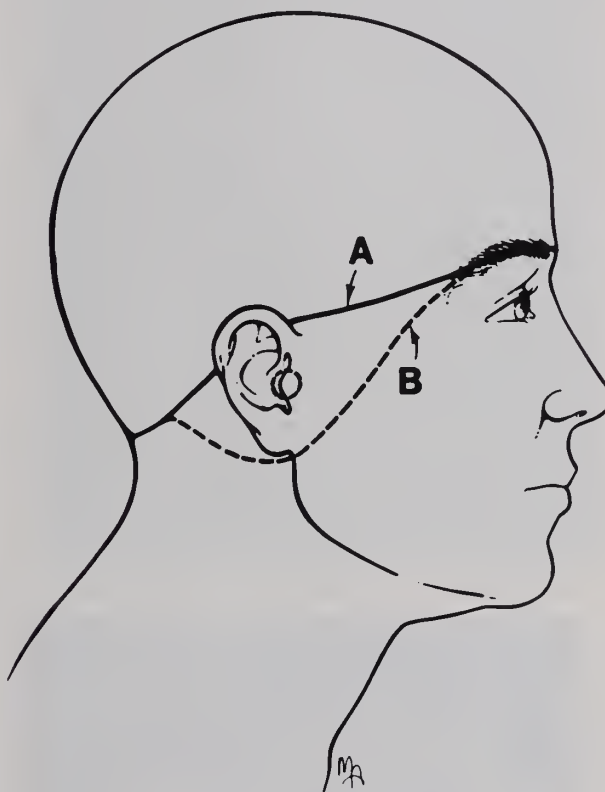


Fig. 6 — Scalp avulsion occurs at areas of bony prominence such as the supraorbital ridge (A), zygomatic arch (B), and a variable posterior extent.

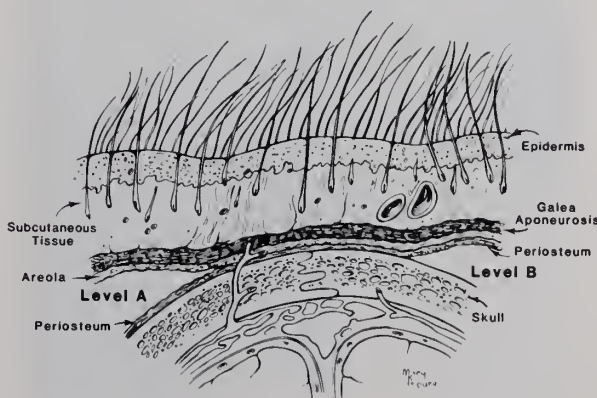


Fig. 7 — The usual level of scalp avulsion is between the galea and periosteum (A), but periosteum may be avulsed with the scalp (B).

veins that accompany the major arteries and intracranially through diploic veins.

Historically the treatment of scalp avulsions involves staged operations and prolonged hospitalization. Skin grafting, rotational or advancement scalp flaps, migrated tube flaps, and occasionally free flap transfers have been utilized in the treatment of scalp avulsions. Skin grafting of the avulsed area has produced a uniformly poor cosmetic result with the grafted area usually incapable of accepting transplanted hair and frequently requiring several operations (Figures 8A, B and C). Rotational advancement flaps are useful in small scalp avulsions only (Figures 9A and B). Replacing amputated scalp without vessel repair has never had acceptable hair growth (Figure 10). Abdominal tube or jump flaps require staged operations, several hospitalizations, and cosmetically poor results.

If the periosteum has been avulsed and skin grafting is anticipated, multiple fenestrations or decortication of the outer table of the calvarium is necessary. This enables formulation of granulation tissue which in turn is covered with skin grafts. Delayed grafting over granulation tissue produces an epithelium without cushion that is not suitable for hair transplantation and

is prone to ulcerate.

Scalp injuries may be classified according to the severity of injuries. Type I injuries are incomplete avulsions where the scalp remains attached on a vascular pedicle or skin bridge. Because of the abundant vascular supply of the scalp, this is treated by conventional wound closure. Type II injuries are those injuries where the scalp is completely avulsed but the defect is small enough to be treated by scalp reduction,



Fig. 8 (B) Failed microvascular replantation.



Fig. 8 — (A) Scalp avulsion with periosteum intact. (Type III injury).

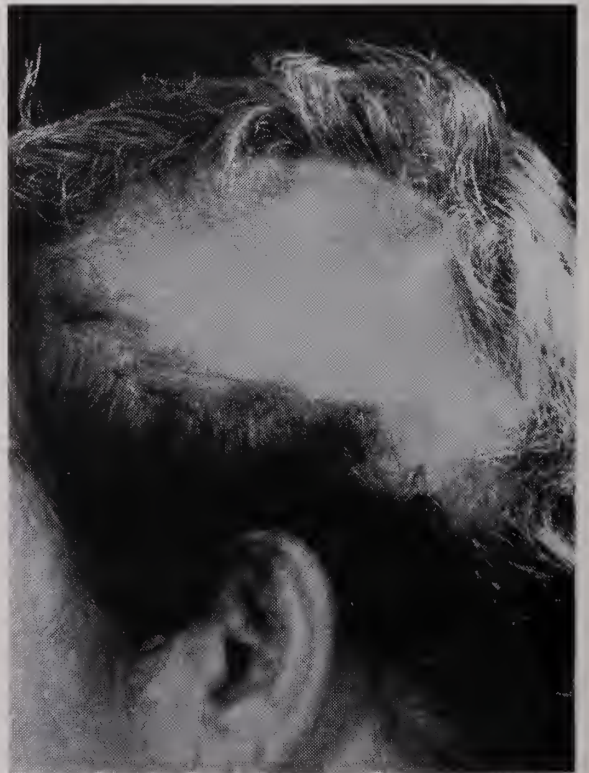


Fig. 8(C) — Following treatment with split thickness skin graft.



Fig. 9 (A-left) and (B-right) Previous patient following rotational flaps to camouflage the injury.



Fig. 10 — Scalp avulsion treated elsewhere by defatting of the avulsed scalp and replaced as a skin graft. Some hair growth is present.

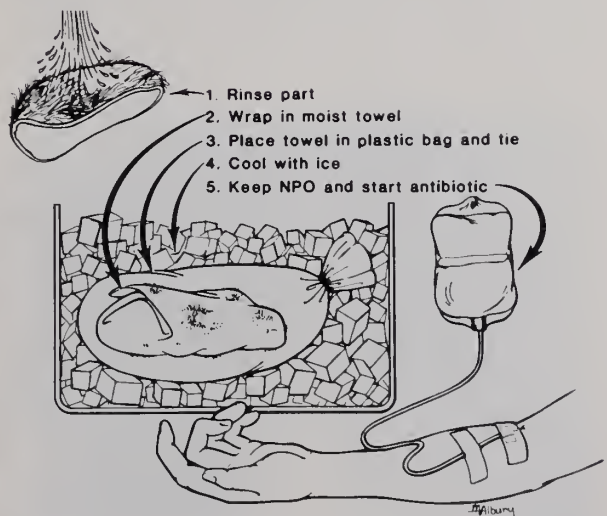


Fig. 11 — Care of the avulsed scalp is similar to care of digital amputation when replantation is anticipated.

advancement or rotational flaps. Type III injuries are complete avulsions too large to be treated by conventional methods but with intact periosteum. Type IV injuries are those avulsions where periosteum is avulsed along with the scalp. Type III and IV injuries are best treated by microvascular replantation (Table).

TABLE

Type	Amputation	Periosteum Intact	Treatment
I	No, flap only	+/-	Suture flap
II	Yes	+	Scalp reduction or Scalp rotation
III	Yes	+	Microvascular replantation
IV	Yes	-	Microvascular replantation

Miller, et al. in 1976 reported the first microvascular replantation of the scalp following traumatic avulsion. By anastomosing the superficial temporal arteries and veins bilaterally, the entire scalp was replanted with subsequent hair growth. Since that time, there have been several subsequent reports of successful microvascular replantation. Gatti and La Rossa recently reviewed seven successful replantations. The superfi-

cial temporal artery was the most commonly used artery. Although larger avulsions appear catastrophic, they carry a better prognosis for survival because of the larger vessel diameter at the periphery of the scalp.

In this case, one vein and one artery provided adequate blood flow and drainage to sustain the replant, but if possible additional vessels should be repaired. Vein grafts will be needed in most scalp replantations because diffuse intimal damage occurs during the injury.

One method of providing early cooling of amputated parts without inducing frostbite is illustrated in Figure 11.

Conclusion

Microvascular replantation is proving itself to be a viable and effective method of treatment for scalp avulsions. The rich interwoven vascular network and the ability of the scalp to withstand long periods of ischemia make the scalp an ideal tissue for replantation. This, coupled with the inadequacies and complications of prior methods of treatment, make microvascular replantation the preferred treatment. Unfortunately this option is not always feasible because of associated injuries.

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Cover Photograph

"Pigeon Point — Tobago"

Tobago, an island in the West Indies, was the winter vacation place for Dr. and Mrs. Donald A. Scholz of Rochester. Pigeon Point is a long sandy beach of Tobago, and people from Trinidad together with vacationers/tourists flock here for week-ends to enjoy the sun. It is a iridescent, calm, pond so appealing in this tropical clime.

Dr. Scholz, a consultant at the Mayo Clinic in Internal Medicine, took this beautiful picture three years ago using a Nikon F. camera with Kodachrome 64 film.

He was one of the winners of the best cover award for 1982 which was featured on the January 1981 issue and was called "Cranberry Delight."

Adult Respiratory Distress Syndrome due to Salicylate Intoxication

JAMES W. LEATHERMAN, M.D.* and CHARLES W. DRAGE, M.D.†

A case of salicylate-induced adult respiratory distress syndrome (ARDS) is described and some of the associated diagnostic and therapeutic difficulties are discussed.

SALICYLATE INTOXICATION is a recognized cause of the adult respiratory distress syndrome (ARDS).¹⁻⁵ Awareness of this association is important because of the frequency of salicylate intoxication and the effect on therapy. We describe an additional case of salicylate-induced ARDS and discuss some of the associated diagnostic and therapeutic difficulties.

Case Report

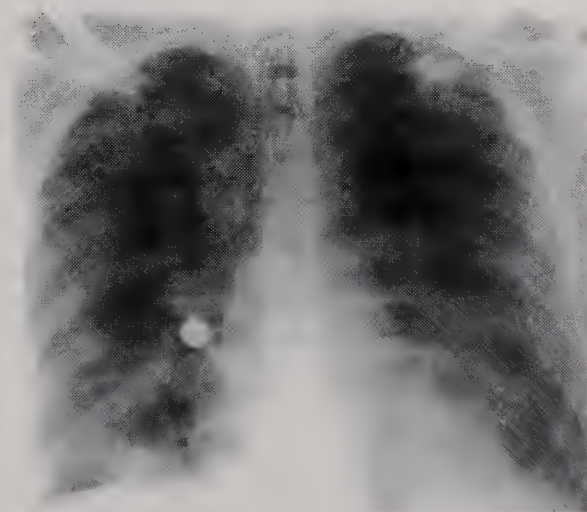
A 47-year-old man with a history of schizophrenia was admitted to the hospital with agitation and tachypnea. His only known medication was haloperidol. His wife had noticed that he had become increasingly restless and breathless during the previous 24 hours. On examination he was agitated, diaphoretic, and dyspneic. His blood pressure was 110/64 mmHg, heart rate 120 beats/min., and respiratory rate 40/min. There were rhonchi without crackles and the cardiovascular exam was normal except for tachycardia. Chest film showed diffuse alveolar infiltrates without cardiomegaly (Figure). Admission arterial blood gases revealed a PO₂ of 57mmHg, PCO₂ of 16 mmHg, pH of 7.41 and a bicarbonate of 10 mEq/l on room air. Additional laboratory data included: sodium 139mEq/l, potassium 4.2 mEq/l, chloride 105mEq/l, total CO₂ 11 mEq/l, anion gap 23 mEq/l, blood urea nitrogen 67mg/dl, creatinine 3.2 mg/dl, prothrombin time 15.6 seconds, partial thromboplastin time 40.6 seconds, and thrombin time 12.9 seconds. A salicylate level obtained soon after admission was 69 mg/dl. An electrocardiogram showed sinus tachycardia, but was otherwise normal. The patient was intubated and placed on a respirator because of progressive hypoxemia and a Swan-Ganz catheter was inserted. The pulmonary artery pressure was 42/16 mmHg with a pulmonary capillary wedge pressure of 12mmHg. Hemodialysis was instituted in an attempt to enhance salicylate elimination. The following day the salicylate level was 32 mg/dl, but the ARDS had progressed. Blood gases at this time revealed a PO₂ of 46mmHg, PCO₂ of 36 mmHg, pH of 7.36, and bicarbonate of 21 mEq/l on an FIO₂ of .6 with 10cm of positive end-expiratory pressure. During the next few days he developed progressive renal insufficiency and laboratory

evidence for disseminated intravascular coagulation (DIC). Heparin was begun and within 48 hours all clotting studies had returned to normal. Several days later thrombocytopenia recurred without further evidence for DIC and the heparin was discontinued, with subsequent return of the platelet count to normal. His respiratory status gradually improved and he was eventually transferred to the psychiatry service with normal respiratory, renal and hematologic function.

Comment

Several reports have described cases of salicylate-induced pulmonary edema in which normal pulmonary capillary wedge pressures have excluded a cardiac etiology.¹⁻⁵ This complication of salicylate intoxication tends to occur in adults with markedly elevated salicylate levels. Although salicylate intoxication is common in children, the development of pulmonary edema has rarely been reported in the pediatric age group.⁶

The presence of pulmonary edema in the salicylate-intoxicated patient may result in diagnostic



Figure

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difficulties if a history of salicylate ingestion is not obtained. Occult salicylate intoxication is often initially suspected because of unexplained tachypnea or the presence of one of several acid-base disturbances, including pure respiratory alkalosis in 22% and mixed respiratory alkalosis and metabolic acidosis in 56%.⁷ These important diagnostic clues may be more easily overlooked when significant pulmonary edema dominates the clinical picture. Anderson, et al, noted that the diagnosis of salicylate intoxication in the adult is frequently delayed and the mortality in this group is significantly greater than in those in whom the diagnosis was established soon after admission.⁸ Those with a delayed diagnosis tended to be older and often became intoxicated while taking salicylates for underlying medical disorders. In addition they were often felt to have a cardiopulmonary disorder giving rise to symptoms which may have been due to salicylates and frequently had an unexplained acid-base disturbance.

In addition to these diagnostic pitfalls there are important therapeutic dilemmas. Forced alkaline diuresis is often employed in salicylate intoxication in order to enhance renal excretion and to induce a state of

mild alkalemia.⁹ The importance of cautious fluid administration in ARDS has been emphasized.¹⁰ Therefore alkaline diuresis could conceivably worsen pulmonary edema. Hormachea et al, reported two cases of salicylate intoxication in which chest films were normal on admission, however both patients developed florid pulmonary edema following vigorous crystalloid infusion.⁴ The use of hemodialysis in salicylate intoxication has been advocated in patients with impaired renal function and in those with levels greater than 80 mg/dl.¹¹ Due to the potential hazards of forced alkaline diuresis in the face of leaky pulmonary capillaries, hemodialysis may be a reasonable therapeutic alternative in patients with salicylate-induced ARDS.

The mechanism by which salicylates increase pulmonary capillary permeability is unclear. Bowers, et al, state that inhibition of prostaglandin synthesis may be responsible¹² while a neurogenic mechanism has been suggested by others.³

Addendum

An excellent article regarding salicylate-induced ARDS has been published subsequent to submission of this manuscript.¹³

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Continuing Medical Education Scientific/Ski Meeting

The Northwestern Medical Association convenes for its 36th Annual Meeting at Sun Valley, ID, from February 7 to 11, 1983. Transplants-implants, general medical subjects, ski-injury prevention, high-altitude physiology and financial planning will be discussed by experts. Approved for 10 CME Category I credits. Registration 3 to 5 p.m. on February 7, Challenger Inn, Sun Valley. Non-members registration \$100. For information, write to Norman Christensen, M.D., 2456 Buhne Street, Eureka, CA 95501 or phone (707) 443-2248.

Antimicrobial Susceptibility of Shigellae Isolated in Minnesota

KENT CROSSLEY, M.D.* and JOANNE SOLLIDAY, M.S.*

Shigellae received by the Minnesota Department of Health laboratories during the first nine months of 1978 (50 isolates) and of 1980 (67 isolates) were tested for susceptibility to eleven antimicrobial agents. The majority (71/117) of isolates were *S. sonnei*. Trimethoprim-sulfamethoxazole was the most active antimicrobial agent tested and is the drug of choice for the initial therapy of patients in Minnesota with this disease.

SHIGELLAE ARE a common cause of bacterial diarrhea, particularly in children and in young adults.

In recent years, empiric treatment of Shigella infection has been difficult because of frequent resistance to antibiotics, such as ampicillin and tetracycline, which have been commonly prescribed for patients with this disease.

Because of significant regional variations in antibiotic susceptibility of Shigellae are known and because there is no recent information about the susceptibility of isolates recovered in Minnesota, the study reported here was undertaken. This investigation was designed to provide information useful in the initial selection of antibiotic therapy for patients with Shigella infection.

Materials and Methods

The Minnesota Department of Health laboratories kindly provided 117 isolates of Shigellae for this study. These isolates were from patients who were clinically ill with shigellosis and were representative of both sporadic cases as well as outbreaks of this disease. The isolates were collected during the first nine months of 1978 and the first nine months of 1980. Distribution by species is indicated in Table 1.

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TABLE 1

Distribution of Shigella Species Tested.

	1978*	1980
<i>S. flexneri</i>	12	24
<i>S. sonnei</i>	33	38
<i>S. dysenteriae</i>	4	2
<i>S. boydii</i>	1	3
Total	50	67

*January-September of each year.

Isolates were stored in wax-sealed tubes on trypticase soy agar until testing. Susceptibility testing was done by the standard disc diffusion technique using single high-potency discs¹. Antibiotics tested included carbenicillin, tetracycline, sulfisoxazole, trimethoprim-sulfamethoxazole, ampicillin, oxolinic acid, nalidixic acid, chloramphenicol, gentamicin, kanamycin and amikacin.

Results

Data for six of the antibiotics studied is presented in Table 2. Trimethoprim-sulfamethoxazole was the single most active antimicrobial. When trimethoprim was tested separately, only five of 117 isolates were resistant to this antibiotic. On the basis of this observation and the susceptibility of the isolates to sulfisoxazole, it is clear that the activity of trimethoprim-sulfamethoxazole is largely due to the trimethoprim component of this combination.

Chloramphenicol was also found to have substantial activity against Shigellae. With both trimethoprim-sulfamethoxazole and chloramphenicol, the proportion of susceptible isolates was essentially identical in 1978 and in 1980.

Resistance to tetracycline occurred in about one-quarter of strains. The isolates were more often susceptible to tetracycline in 1980 than they had been in 1978 when only 42% of strains were sensitive to this antibiotic.

Ampicillin was active against 57% of the 1980 isolates. This was essentially unchanged from the proportion of isolates which had been susceptible to this drug in 1978. Carbenicillin was active against a similar percentage of the 1980 isolates but had been substantially more active against the isolates collected

TABLE 2

Susceptibility of 117 *Shigella* Isolates to Selected Antimicrobials.

	CARBENICILLIN		TRIMETHOPRIM-SULFAMETHOXAZOLE		SULFISOXAZOLE	
	1978	1980	1978	1980	1978	1980
<i>S. flexneri</i>	12/12 (100)	19/24 (79)	12/12 (100)	21/24 (87)	3/12 (25)	16/24 (67)
<i>S. sonnei</i>	19/33 (58)	16/38 (42)	33/33 (100)	38/38 (100)	20/33 (61)	14/38 (37)
<i>S. dysenteriae</i>	4/4 (100)	1/2 (50)	4/4 (100)	1/2 (50)	3/4 (75)	0/2 (0)
<i>S. boydii</i>	1/1 (100)	3/3 (100)	1/1 (100)	3/3 (100)	1/1 (100)	1/3 (33)
Total	36/50 (72)	39/67 (58)	50/50 (100)	63/67 (94)	27/50 (54)	31/67 (46)

	TETRACYCLINE		AMPICILLIN		CHLORAMPHENICOL	
	1978	1980	1978	1980	1978	1980
<i>S. flexneri</i>	6/12 (50)	16/24 (67)	11/12 (92)	19/24 (79)	12/12 (100)	20/24 (83)
<i>S. sonnei</i>	10/33 (30)	31/38 (82)	17/33 (52)	15/38 (39)	33/33 (100)	38/38 (100)
<i>S. dysenteriae</i>	4/4 (100)	1/2 (50)	4/4 (100)	1/2 (50)	4/4 (100)	1/2 (50)
<i>S. boydii</i>	1/1 (100)	3/3 (100)	1/1 (100)	3/3 (100)	1/1 (100)	3/3 (100)
Total	21/50 (42)	51/67 (76)	33/50 (66)	38/67 (57)	50/50 (100)	62/67 (93)

*Percentage susceptible in parentheses

in 1978.

All of the isolates in both years were susceptible to oxolinic acid, nalidixic acid, kanamycin, gentamicin and amikacin.

Discussion

The susceptibility of *Shigellae* to ampicillin varies significantly by geographic region. Thus, a recent study of *Shigellae* isolated in New York City found nearly 70% were ampicillin resistant; other authors reported only 7% of isolates in Omaha were resistant to this drug^{2,3}. Similar variations have been documented for tetracycline^{3,4}.

Unfortunately, the agents which were uniformly effective in vitro against our *Shigella* isolates are not of clinical usefulness. Thus, oxolinic acid and nalidixic

acid are not FDA approved for treatment of this disease. The aminoglycosides (kanamycin, gentamicin and tobramycin) have not been shown to be effective therapy for *Shigella* infection.

On the basis of our data, tetracycline and ampicillin would not seem appropriate initial therapy for a patient with *Shigella* infection in Minnesota. Our results and data from similar studies suggest that trimethoprim-sulfamethoxazole is the drug of choice for the initial therapy of shigellosis.

Acknowledgment

We are grateful to Ms. Beverly Brabec and Mr. John Washburn of the Minnesota Department of Health for supplying the *Shigella* isolates used in this study.

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Five Theses for the Health Care Debate

S.R. MAXEINER, JR., M.D.*

RAPID GROWTH OF OUR American health care system is notable in three areas: utilization of health care services by more and more of our population; scientific advances leading to new treatment possibilities; and dedication of a growing proportion of our gross national product to provide these services. We have spent more and more money for more and more services for more and more people. We have recognized no limit to our expectations for health care services; no limit of selection, nor of capability, nor of national resource. Until now. The nation is becoming painfully aware that our infinite expectations must be abridged for the sake of our finite resources. How can we provide these services to our people, and maintain our scientific and technological progress, and stay within our means? We face difficult decisions. We have begun a national debate to address antithetical choices, and contradictory demands.

Every citizen has a stake in this debate, a valid motivation to voice the insight gained from his/her own point of view. I speak as a doctor of medicine, a clinical professor of surgery in private practice, and an elected officer of a large county medical society. I will address five theses:

1. The extent that professional health care is the right of every citizen.
2. In relation to health care, three special considerations which apply to our conceptions of a free market and of competition.
3. Two essentials to quality in health care services.
4. Two thoughts about the essential nature of the medical profession, leading to one responsibility and one incompatibility.
5. A possible new role for physicians.

1. To what extent is health care a right?

I have a personal health problem, a degenerating hip joint. Its ultimate treatment may some day require the total surgical replacement of that joint with a prosthesis and represents the consumption of a significant bite of health care resources. Am I entitled to this care, as a right? A few short years ago, the procedure was

undeveloped, and possible to no one, either as right or as opportunity. A few long years hence, I might be too old and frail to merit or benefit from this procedure; would it nevertheless be my right? What about today, when I don't yet really need it? Is it still my right? I think it is too strong to say that health care is a right, comparable to life, liberty, or pursuit of happiness.

Rather, what is a right is access to health care. I am not to be denied a procedure for any categorical reason of age or race or ability to pay. Our national interest requires that every citizen should have an equal chance at the possible benefits of the health care system. Rich or poor, young or old, of any color, — every citizen should have a chance.

However, once the patient has entered into the health care system, treatment decisions must be highly individualized. Health problems are complex. Multiple factors defy categorical decision-making. Free individual choices and interpersonal transactions between patient and physician will determine what treatments are recommended, accepted, and embarked upon. Economic consideration and national policy may influence treatment decisions at this interpersonal level. They must not override the freedom of these choices. They must never prevent access to the arena in which the choices are made. It is access to health care which is each citizen's right.

2. Three special considerations of free market and competition in relation to health care.

- a. One necessary component of a free market is free access to the market place of those who would provide services. In the health care field, this principal must be abridged to an extent which allows entry only to qualified providers. Educational standards must be maintained as a basis for licensing or other appropriate control of providers. Except for turpitude, no other restriction should be placed on access of providers to the market place. Without these standards, even the wary consumer would stand exposed to poor care and exploitation.
- b. Alternative forms of organization of health care services offer some real hope for economy. Prepayment plans, e.g., HMOs, should be given every chance in a free market place to prove their

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merit. They cannot do so unless they are allowed to function independently of outside assistance. Some receive initial government subsidy. Many receive tactical marketing benefits from governmental policy. Others receive transfer payment from parent organizations which derive their money from traditional fee-for-service practice. They must first stand alone and stay healthy. Therefore, it is still too soon to establish any public policy which would promote such plans at the expense of traditional practice forms.

- c. Another requirement for a free market place is the free exchange of information concerning quality and price. In health care, such information has not been freely available. Perhaps it should be. But we will first have to learn how properly to collect it. Meaningful data should refer to a "spell of illness". The data base here refers not to components of cost — e.g., drugs or tests, or physician fees, — but rather to total aggregate costs of all components for care rendered during a specific health-care event. The importance of this concept resides in the fact that physicians, who generally receive 19¢ of the health care dollar, are the purchasing agent for 70¢ to 80¢ of the health care dollar. Physician-specific data-collection for total cost of spell of illness may reveal significant differences in styles of practice, and incidence of expensive events. Even a physician whose fees are high just might be a low-cost provider, when total costs are considered. These are the data required to determine which providers are efficient, and which not. These are the incentives for efficiency to be built into physician reimbursement.

To make the concept fair and accurate, data collection must be sufficiently specific. Medical care is complex. Patients often have simultaneous multiple problems. The collection of dissimilar cases into common categories will yield poor information. "Garbage in, garbage out." Systemization of data collection specific to physicians, hospitals, diagnoses, procedures, and spell of illness is a new and urgent need for the guidance of our health care system. I hope medicine will perceive its necessary role here so that valid cost profiles can be developed for physicians, institutions, and localities.

3. Two prerequisites to quality in health care services.

The quality of health care is an icon for lip service.

But we must never take quality for granted. It is a fragile by-product of a healthy system. It must be specifically and consciously protected. It derives from 2 sources. An obvious one is the scientific and academic achievement of all of the health sciences, and most remarkably in research and the advancement of knowledge.

But the stunning successes of our recent history do not result from self-sufficient technology. Rather, these services provided to the patient require interaction and response by the patient. Healing is a profoundly human process. In a broad sense, healing includes physical recovery and also emotional growth to accommodate anxiety, suffering, disability, and loss. The essential ingredient to allow healing to happen is the caring concern of the healing professional. Healing hands require loving hearts.

This second source for quality health care lies in the ethical and spiritual well springs which motivate those persons who give the care. I am speaking of altruism, an essential ingredient for quality care. It will flourish only among those men and women whose own personal needs are being satisfied. Quality of health care requires that those whose work provides the healing service be sustained and rewarded in their work. Where their own needs are met, they can recognize and respond to their altruistic ideals. Were they to be exploited, underpaid, unappreciated, their altruism would be snuffed out; and their services would lose that human care which transforms health care into healing.

4. Two thoughts about the nature of the medical profession

First, a responsibility. Of the many fields of the health sciences none is deprived of its own dignity and worth when we ascribe to medicine the primary responsibility to assess and ensure overall the quality of care given to sick patients. There is no way that medicine can escape this responsibility. Our national debate must never demote nor devalue its essential importance. Standards for education, for licensure, for ethics, and for hospital facilities and services are examples of the influence of medicine in promoting the quality of health care. In our national debate we will do well to acknowledge our dependence on medical professional knowledge for this important quality control. Analogy to the fox guarding the chicken coop is erroneous and destructive. The shepherd watching his flocks would be a more appropriate image.

Second, an incompatibility. The newest planning ideas to relieve our economic stress touch on sensitive subjects. Is the provision of services to be cut off at a

certain budgetary limit, or after a certain age? Are we to accept the rationing of health care services? If so, some one must decide which patient is treated, and which is not. Governor Babbitt¹ has suggested the physician must do that, since the choice is too hot for politicians. Such a view misses the essential nature of the physician's role. The physician is identifiable with the patient. The physician's interest and intent must be wholly, integrally, the welfare of that individual patient. The physician cannot, without violating this identity, make any arbitrary decision about the patient as object. Such an act would be incompatible with the physician's role as healer.

5. A new role for physicians?

All of the conflicts and cares expressed above fall into place if we add a new role for the physician to play.² Let us leave in free competition the various forms by which we provide health care services. Let us

assure access for all our citizens to the health care system. Let us measure precisely the total costs of care for spells of illness in comparable groups of cases specific to physicians, to hospitals, and to geographic regions. And let physicians develop their role as purchasing-agent for health care, with a stake in their results. Cost-effectiveness can become part of decision-making. Patients and families and physicians can be guided by policy decisions of employers, insurers, or government. But the final decision will be individually made by the persons most directly involved. If cost effectiveness becomes a national conscience, and health care services remain in control of caring persons then our infinite expectations may be brought down to match our resources. As a nation, we may become able to get along with fewer health care services without really giving up very much in the way of healing.

References

1. Babbitt, Bruce, Governor of Arizona. Remarks in an address to the AMA National Leadership Conference, Chicago, February 27, 1982.

2. Young, DW, Saltman RB. Medical Practice, Case Mix and Cost Containment JAMA 247:801-805

Echoes from Our Past

Photographic Surgery

JACK D. KEY, M.A., M.S.*

An unusual application of photography was mentioned in the August 3, 1867, issue of *Lancet* p. 146.

A gentleman who had married a young and handsome lady, of whom he was extremely jealous, was obliged to apply to a surgical celebrity of Paris on account of a boil which caused the lady great agony, and was situated about the cardiac region. To allow of an inspection was out of the question, and nothing could induce the husband to sanction it. The surgeon declined prescribing blindfold; but the difficulty was overcome by the gentleman's skill in photography and tinting. He presented to the doctor the exact facsimile of the affected part, was told what course to pursue, and to report progress in a few days. This was done very punctually, and a second photograph presented. After three or four visits of this kind the wife was well, and the husband much pleased with the success of his contrivance.

*Librarian, Mayo Clinic, Rochester Minnesota.

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Letters to the Editor

Dear Editor:

This letter is being sent to you as the editor of MINNESOTA MEDICINE. Your attention is invited to the July 82 issue page 429. The article is "Population-Based Studies of Diabetes Mellitus in Minnesota: Rationale and Methods." In the third paragraph is a list of "unanswered questions."

Paragraph 1 refers to Type I and Type II diabetes. At this point I re-read the whole article, and found no definition of Type I and Type II. If the article was meant to be of general interest to physicians, it might be considered reasonable to offer a definition of the sub grouping of diabetes. Some physicians in Minnesota may be interested in other specialties, and not necessarily aware of the jargon of other interests.

Woul it be appropriate for the editor to ask that, as much as possible, the articles printed in the MINNESOTA MEDICINE, be written in a style likely to be understood by physicians with various interests.

B. A. Grimes, M.D.
Cleveland, Minnesota

P.S. "The Cliche Expert Speaks Jargon" page 397 was excellent.

Dear Editor:

The present classification of diabetes mellitus includes three major categories which appear to be different in etiology and pathogenesis. The first is Type I or insulin — dependent diabetes formerly known as juvenile-onset diabetes. The second is Type II or non-insulin dependent diabetes, formerly known as adult-onset diabetes. The third category includes diabetes associated with certain conditions or syndromes (e.g., pancreatic disease, hormonal imbalance, drug induced). In addition to these three categories, medical specialists have recommended the classification of individuals with impaired glucose tolerance, gestational diabetes, and previous or potential abnormalities of glucose tolerance.¹

For purposes of our population-based studies of diabetes in Minnesota, we defined Type I diabetics as those individuals less than twenty-five years of age (at diagnosis) with insulin prescribed at the time of diagnosis. All other individuals with diabetes diagnosis were considered as Type II.

In view of the many classifications of diabetes, we concur with Dr. Grimes that precise definitions of terms should have been presented.

Alan Bender, D.V.M., Ph.D.
Minnesota Department of Health

Reference

1. Fajans, SS: Classification of Diabetes Mellitus. Diabetes Mellitus Volume V. Rifkin and Raskin (eds) R.J. Brady Company, Bowie, Maryland. Pages 95-102, 1981.

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* Meeting of Am Soc Colon/Rectal Surgeons, May 1980.

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WARNINGS

The safe use of topical steroids during pregnancy has not been fully established. Therefore, during pregnancy, they should not be used unnecessarily on extensive areas, in large amounts or for prolonged periods of time.

PRECAUTIONS

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See "WARNINGS"

Pediatric Use

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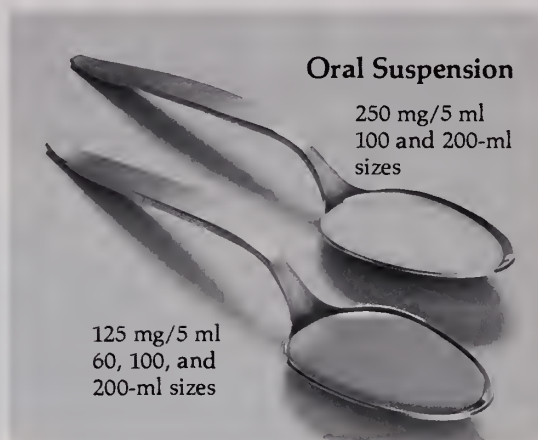
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Injuries to the Brain and Spinal Cord Assessment, Emergency Care, and Prevention

SUSAN GOODWIN GERBERICH, Ph.D., R.N.;* JAMES D. PRIEST, M.D.;† JOE GRAFFT, M.S., E.M.T.;‡
and RICHARD C. SIEBERT, M.D.‡

THE BRAIN AND SPINAL CORD are susceptible to injury during participation in a variety of sports and recreational activities. Because of the potential for debilitation and/or death as a result of trauma to the central nervous system, information relevant to assessment, emergency care, and prevention of such injuries is presented in this article.

Characteristics of the Brain and Mechanisms of Injury

Any kind of high energy contact or collision may cause injury to the brain or spinal cord. Such collisions may occur in falls on the playground, encounters in boxing, wrestling, gymnastics, football, pole-vaulting, diving, baseball, hockey, basketball, or other sports and recreational activities.

In Figure 1, specific areas of the brain with respective functions are reviewed. Damage to any of these areas will result in alteration or loss of function depending upon the severity. For example, head injuries which occur during sports or recreational activities may involve brain swelling, small hemorrhages throughout the brain, or even larger hemorrhages in focal areas. These injuries may be indicated by lapses of memory, personality changes, or impairment of judgment if they are located in the frontal region of the brain. With involvement of the temporal lobe of the brain, the individual may experience feelings of unreality, déjà vu, hallucinations involving odors, sounds, and/or visions, and macropsia or micropsia. These symptoms may not be volunteered by the individual but must be elicited actively through questioning.¹

Some of the most serious brain injuries occur without any evidence of skull fracture.¹ Reid and his

associates² found that head injury is dependent not only upon the magnitude and direction of impact and the structural features and physical reactions of the skull, but also upon the state of the head at the moment of impact. It is the response of the brain to a force rather than just the force itself that causes injuries. Any blow to the head may be injurious because of this mechanism.

These researchers studied actual forces to the head of a player engaged in contact activity. An important finding was the fact that a concussion is not necessarily the result of a single blow but may be the cumulative effect of a series of blows. Furthermore, fatal head injuries are frequently associated with prior concussions.^{1,3}

What Is a Concussion?

A concussion is a head injury which involves a change in mental behavior, with or without loss of consciousness. More serious forms of head injury may result in damage ranging from microscopic tearing of blood vessels and brain swelling to gross and rapid bleeding within the skull.¹

Concussions and minor contusions are associated with a sudden movement or shifting of the brain. A doctor, who was a former boxer, described a movie that shows what happens to the brain of an experimental animal when the head is struck: "It's a very frightening movie, because you see very minor

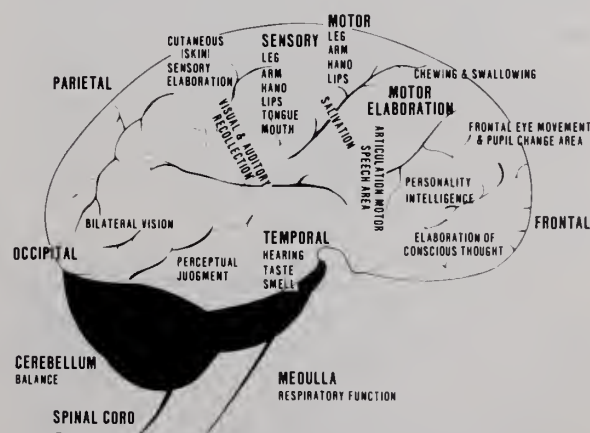


Fig. 1 — General Areas and Functions of the Brain.

*Director of Research, Institute for Athletic Medicine, Assistant Professor, School of Public Health, University of Minnesota, Minneapolis, Minnesota, and a consultant in Injury Prevention and Sports Medicine Research.

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‡Trainer and Emergency Care Director, Minnesota School District 16, Spring Lake Park, Minnesota.

#Neurosurgeon with Minneapolis Neurological Surgeons, Ltd., Minneapolis, Minnesota.

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touches to the head causing tremendous swirling of the brain and you can see little vessels tearing.”⁴

The concussion may be known by a variety of descriptions. A former professional athlete described being ‘dinged’: “. . . getting hit in the head so hard that your memory is affected, although you can still walk around and sometimes even continue playing. You don’t feel pain and the only way other players or the coaches know you’ve been dinged is when they realize you can’t remember the plays.”⁵

Concussion Symptoms and Considerations of Care

Any of several symptoms, in varying combinations, may be experienced in a mild, moderate or severe concussion; however, each has a potential for serious consequences.^{6,7} In each case, attention is directed to assessment of the player and proper care of the injury.

Mild Concussion

An individual with a mild concussion may experience brief symptoms of headache, ringing in the ears, incoordination of body movements, or mental confusion following a blow to the head. There is no loss of consciousness and recovery is rapid.

This person should be removed from the activity for at least several minutes. Under no circumstances should the individual be permitted to resume contact or regular activity until s/he can move with usual dexterity and speed, and is perfectly oriented as to the time, place, and who s/he is.⁷

More importantly, an athlete must not be returned to play until s/he can answer questions appropriately about what s/he was doing just prior to the head injury (e.g., “What was the last play you just made?” “What were you assigned to do on the field?” “What game were you just playing?”⁸ Furthermore, the individual must be watched closely for signs of changing orientation, fatigue, and inappropriate behavior.⁹ Since amnesia may occur 10-20 minutes following a blow to the head, continuous assessment of players is very important. Potential complications include intracranial or intracerebral hematomas and cerebral contusions. Such complications must be suspected in any individual complaining of acute or chronic headaches⁷ and/or persistent symptoms.

Moderate Concussion^{6,7}

A moderate concussion involves loss of consciousness, but with recovery occurring in less than five minutes. Typically, the individual cannot remember what happened just before the loss of consciousness.

⁴Baker¹⁰ and ten Benschel¹¹ advise that patients having a definite loss of consciousness after trauma, no matter how brief, should be admitted to the hospital for observation.

Symptoms of headache, visual disturbances, hallucinations, ringing in the ears, drowsiness, nausea, and dizziness may be experienced in varying combinations.

This individual must be removed from activity and should not be permitted to re-enter. Close observation by parents or by hospital personnel is mandatory for at least 24 hours;* frequent checks must be made for any changes in the neurological status. Furthermore, s/he must not be permitted to return to athletics or regular activities if any of the above symptoms or other neurological abnormality persists (e.g. weakness, numbness, tingling and/or burning of the legs, arms, etc.; behavior changes).

Any individual who has sustained a moderate concussion should not return to activity until a physician has conducted a thorough neurological examination and given permission to resume play. It has been recommended that an individual who has experienced two moderate concussions should be referred to a neurologist or neurological surgeon for consultation, with serious consideration given to limiting activity to non-contact sports.^{6,7} However, appropriate judgment of cases is required; in the case of a single severe head injury, whereby structural damage is evidenced by clinical examination and/or specialized techniques, total restriction from contact sports may be warranted.⁷

Severe Concussion

With a severe concussion, the individual is unconscious for five minutes or more. Eye movements may be wandering and there may be little or no response to pain. Amnesia of the events of the last few minutes may be severe.^{6,7} Adequate breathing and circulation must be maintained.

Immediate hospitalization by a physician and consultation with a neurosurgeon, if available, is advisable. The athlete may require hospitalization for at least one or two days following this injury.

Emergency Care

Emergency treatment of any injury is directed toward avoiding further injury. Careful and thoughtful handling of the injured is essential. Since head and neck injuries can occur together, it is important to treat individuals who are unconscious or who have symptoms of a head injury as if they have a cervical spine injury.⁴ The extent of the injury is difficult to determine and all injuries must be considered serious until proved otherwise.

Seizure activity may occur with a moderate or severe concussion or with a more severe brain hemorrhage. While this activity is usually a self-limiting event,

anti-convulsants may be required.

Characteristics of the Spinal Cord and Mechanisms of Injury

The spinal cord is approximately one-half inch in diameter and extremely sensitive to injury; if one were to drop a twenty-five cent piece from a height of twelve inches into an exposed spinal cord, all neural function would be completely and permanently destroyed.¹²

Normally, the spinal cord is protected within the bony structure of the vertebrae. Ligaments at the front and back of the spine lend further support throughout the entire length of the spine.¹ In Figure 2, the cervical, thoracic, lumbar and sacral regions with correlative functions are identified.

Quadriplegia and paraplegia are the most serious outcomes of spinal cord injury. Severe injury to the spinal cord at the level of the correlative functions, or higher, will interfere with the specific functions; partial injury to the cord will result in varying degrees of interference with these functions. More frequently, during sports or recreational activities, we may encounter an individual who has neck or back pain, numbness, tingling, or burning of the arms or legs — or possibly a combination of these symptoms.

In general, there are five mechanisms involving transfer of force to the spinal column that may result in injury to the spinal cord. These are pictured in Figure 3: (1) pure flexion (or hyperflexion) and lateral flexion injuries are common in sports; (2) flexion and rotation; (3) extension (or hyperextension); (4) vertical compression; or (5) direct hit forces.¹³ It can be seen how such mechanisms may play a part in recreational and sports activities. Through these mechanisms, outside force against the resisting forces of the ligaments, muscles, and joints of the head, neck, and spinal column may result in varying degrees of damage. This may include dislocations of the vertebrae or of the discs, fractures of the vertebrae, and rupture of the ligaments — all lending a potential for injury to the spinal cord.

Symptoms of Spinal Cord Trauma and Considerations of Care

Symptoms of spinal cord injury may include the following, in any combination:

1. Pain or tenderness in the neck and/or back. A spinal cord injury must be suspected when the person has neck pain, lacerations on the forehead, or is unconscious, following a fall or other contact activity. Pain may or may not be present if the person is lying still. Any movement may increase the perception of pain. Do not

allow the person to move the neck to test for pain. Any movement of the head or neck could result in further damage, paralysis, or death.

2. Numbness, tingling, burning, muscle weakness, twitching, and/or paralysis of the arm(s) or leg(s). "Stingers" may involve momentary sensations such as numbness, prickling, burning, or heightened sensitivity in one or both arms; trauma either to the spinal cord or peripheral nerves may be manifested in this manner. Serious injuries have been documented that involved only burning hands initially.¹⁴
3. Inadequate breathing due to paralysis of the chest muscles. It may be noted that instead of chest movement, the abdomen moves in and out with each breath. With very serious injuries, breathing may cease.
4. Lack of mobility or decreased strength in any limb; stumbling; tendency to fall or trip easily.

All athletes/recreational sports participants must be informed to report any of these symptoms immediately to coaches and parents.

Prevention of Head, Neck, and Back Injuries

Prevention of injuries includes attention to equip-

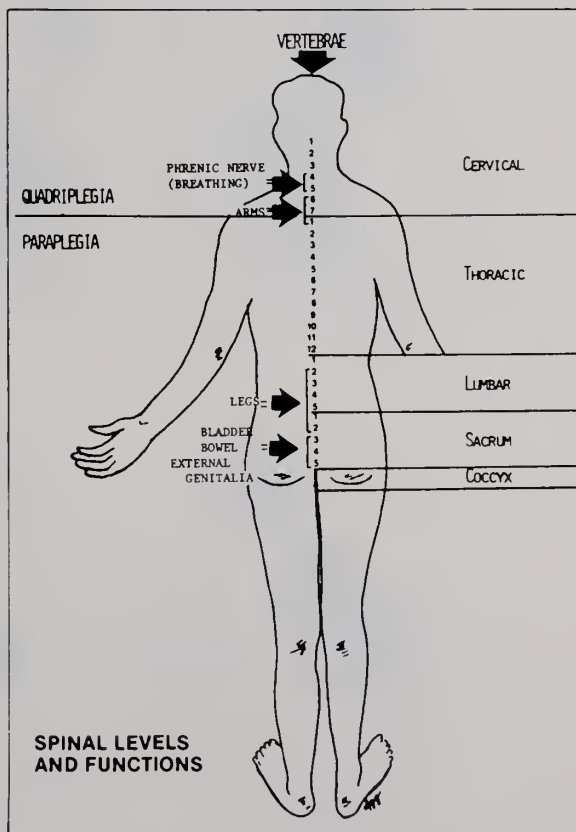


Fig. 2 — Spinal Levels and Functions.

ment, staff involved in the program, conditioning, pre-season and post injury evaluation, and recording and reporting:

1. **Equipment.** The best protective equipment must be used with attention to proper fit; yet, it must be understood that equipment does not fully protect the individual. In the case of helmets, the "head and neck can never be protected completely to withstand a direct impact force no matter how good the protective equipment may be."¹¹

Where mats are utilized, be sure that the thickness and material are adequate for the activity. Frequent inspection and maintenance of ropes, rings, bolts, belts, harnesses, springboards, diving boards, and other critical equipment is imperative; pay attention to surfaces of the ground or floor or relevant equipment and make sure there is adequate distance between any activity area and surrounding hazards such as benches, etc. This inspection/maintenance process should be well documented and reviewed regularly.

2. **Staff.** Staff must be qualified to instruct the activity and well-informed of appropriate tech-

niques. They are responsible for preventing the use of dangerous types of contacts and game techniques. Players must be warned not to ram their heads, under any circumstances, into oncoming players. This includes the use of the head in football techniques such as face-tackling and/or butt-blocking, in hockey when body-checking, in general physical education activities, and other sports/recreational activities where the head may be used.

3. **Conditioning.** Incorporate special neck-strengthening exercises, beginning two to three months pre-season.¹² Good preconditioning for any activity is essential to increase resistance to injury.
4. **Pre-season Physical Examination and Careful Evaluation Before Return to Activity.** Since many individuals with potentially serious symptoms never reach the attention of a physician, a thorough evaluation for defects, previous injuries, and assessment of pain and related symptoms is necessary before participation.¹⁵⁻¹⁷ Every player receiving a head, neck or back injury should have a careful physical



Fig. 3 — Mechanisms Involved in Injuries to the Neck and Back.

examination; a physician's approval to return to participation must be obtained. Before participation, the person must be free of pain and other symptoms and have full strength and range of motion in the area related to the injury. In the case of a head injury, the player must be free of all relevant symptoms.

5. **Recording and Reporting.** Because there is no systematic recording and reporting for these and other injuries, good information is not readily available for participants in physical education classes, general recreation, or organized sports. Such information is essential in understanding the mechanisms involved in injury so that it may be applied in prevention. By evaluating the symptoms, the mechanisms of injury, and information relevant to the surrounding circumstances, preventive measures can be implemented more readily and realistically.

Important Consideration in Care and Prevention of Head, Neck and Back Injuries

Specific issues important in the care and prevention of head, neck, and back injuries are identified in the following:

1. **The human body has limitations.** Contact/collision activity must not be conducted without appropriate protection.
2. **Symptoms of concussion may develop without anyone being able to identify a specific injury** because of the potential for slowly developing problems from cumulative effects. (Refer to the Summary of Symptoms and Signs.)
3. **You do not have to be unconscious to have a concussion.** Therefore, if there is any question about the symptoms, the player should be referred to a physician.
4. **When a player is lying on the ground, do not lift the head or attempt to remove a helmet.** Neck injuries and head injuries can occur together, and certain neck injuries can also cause unconsciousness; damage to the spinal cord can occur merely from energy transmission as a result of a direct blow on the head.¹ "Any trauma sufficient to cause a head injury is sufficient to cause a neck injury and must be treated as such."¹⁸ Therefore, if a player is down, he should not be moved until a well-trained person is present.
5. **Every school/recreation program should have a well-designed, pre-determined plan of action for all emergency care.** This must include immediate telephone access and ambulance service (well equipped and staffed with qualified personnel). An established protocol for immediate hospital access and a referral network to physician specialists (e.g., neurosurgeons, thoracic surgeons) through a local physician is essential. Information about this pre-determined plan must be basic knowledge to all teachers and staff.
6. **Principles of Emergency care:¹⁸**
 - Maintain an open airway and heart circulation. If the injured person is wearing a helmet with a face mask, large bolt cutters or (for some helmets) a pen knife should always be available to remove the face mask;¹⁹ this will facilitate insertion of an oral-pharyngeal airway, administration of oxygen, and cardiopulmonary resuscitation if necessary.¹
 - Notify the hospital, local physician, neurosurgeon, etc. through the established emergency network.
 - Administer 100% oxygen. Although the brain comprises only 2% of the body, it consumes 20% of the available oxygen. Equipment: Portable oxygen tank — full, with attached wrench, mask, and tubing.
 - Administer Decadron I.V./I.M., in the case of a probable spinal cord injury, to facilitate optimum outcomes.
 - Avoid the use of smelling salts. Give nothing to eat or drink.
 - Provide wound care as necessary.
 - Do not remove impaled objects.
 - Transfer properly using a stiff spine board with straps and padding to immobilize the head and neck. The individual should not be removed from this board until all X-Rays and evaluation are complete.
 - Cardiopulmonary resuscitation may be necessary and must be continued until the patient is maintaining his own heart rate and respirations, or until mechanical devices can be attached, or until available rescuers are physically incapable of continuing resuscitation efforts. (Contact the American Heart Association or other relevant organizations regarding certification classes.)
7. **Much damage can be done through failure to recognize an injury and to get the individual into proper hands.** A recent comprehensive epidemiological study documented that a large percentage of potentially severe injuries, including trauma to the head and neck, were either not recognized as potentially dangerous and/or

were not managed appropriately.¹⁵⁻¹⁷ "As a minimum standard, at least three people trained in first aid — teachers or members of the office staff — should be available at all times in each building. Teachers and staff members associated with such hazardous areas of the schools as the gymnasium . . . and playing fields must be qualified in first aid."²⁰

8. **Report all injuries/symptoms, regardless of severity, to appropriate athletic/recreation program staff and parents/guardians.** Participants are often hesitant to relate such information; however, they must be directed to report all symptoms/problems without fear of reprisal.¹⁵

Summary of Symptoms and Signs

Special considerations must be given to possible head, neck, and/or back injuries. Observe for any of the following:

- Loss of consciousness.
- Memory loss involving recent events, within the last few minutes to several hours.
- Drowsiness; inappropriate and/or changed behavior.
- Eyes: staring or wandering appearance; deviation; pupils unequal in size and in response to light; blurred, double, or other disturbances in vision.
- Muscle drooping on one side of the face or of one eyelid.
- Inability to speak coherently; slurring of speech.
- Headache.
- Dizziness.
- Nausea; vomiting.
- Hallucinations — odors, sounds, visions; déjà vu
- Seizure activity; muscle twitching
- Neck and/or back pain.
- Numbness, tingling, burning, etc. of any part of the body.
- Lack of mobility or decreased strength in any limbs; incoordination of body movements; stumbling; tendency to fall or trip easily.

Do not permit the individual to return to activity if he (she) has had any loss of consciousness, no matter how brief, or if any of the above symptoms are present.

Acknowledgments

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Effects of Deinstitutionalization on Acute Care Psychiatric Facilities*

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Patient characteristics of an acute care facility are examined before and after the closing of Hastings State Hospital. The results indicate a dramatic shift toward more chronic patients with lower levels of functioning. Issues regarding the increased reliance on acute care facilities to meet the needs of chronic mental patients are discussed.

DEINSTITUTIONALIZATION HAS become a public health issue of major concern in the past several years. *Deinstitutionalization* describes the movement of individuals who have difficulty functioning independently and who need continuing care of various kinds from more to less restrictive settings. In the mental health sector, the term describes the transfer of patients from public mental hospitals to community settings. The intent is that community living confers a better quality of life on these formerly hospitalized individuals while participating in the necessary outpatient, day care, or other rehabilitation programs. An estimated one and one-half million ambulatory adults with chronic disabling mental health problems now reside outside of hospitals.¹

For deinstitutionalization to properly proceed, a network of supportive services to aid the patient in re-entering the community is essential; otherwise a large percentage of patients are doomed to failure. A 1977 report from the General Accounting Office, highlights the uncoordinated, fragmented and limited services that are available in most communities.² There are few provisions to support the deinstitutionalized patient to live independently, in sheltered care, or with their families. Scant attention has been directed to the specific settings in the community and the services necessary to support this disadvantaged population. Many patients have spent a good portion of their lives in institutional settings. Adjustment to their new environment requires additional assistance. A significant deficit is in the

coordination of services available to the chronic patients.

Deinstitutionalization admittedly is a desirable goal, and emphasis must be paid to the impact it has had on the other service providers in the mental health delivery system. Former patients will require rehospitalization for some period of time since, in most cases, there are insufficient support services available. When these patients relapse, and the need to be rehospitalized occurs, every effort is made to provide treatment within the community. This translates into the psychiatric unit at the local acute care facility, influencing the composition of the population seeking admission to local psychiatric inpatient units.³

For many psychiatric patients, brief hospitalization in acute care facilities confers the advantage of less disruption to their lives and the lives of their families, reduction of institutionalization effects and minimization of treatment costs.^{4,5,6} However, as the proportion of readmission has increased, the patient population of public acute care facilities has shifted toward multiple admission of patients with a history of chronic difficulties. These patients re-enter the health care system through acute care facilities in the communities to which they have been returned. In general, standard inpatient treatment approaches have not shown any impact on the rehospitalization of chronic patients.⁷

The repeated admissions of chronic patients into acute care settings forcibly leads to dealing with a population whose functioning levels are typically low and whose prognosis is poor. The population of acute care psychiatric units changes with the admission of more chronic, revolving door patients. This raises the question whether treatment programs can be changed to accommodate the chronic patients without detracting from the treatment of acutely ill patients.

This report observes the effects of deinstitutionalization on the psychiatric facility of a general hospital.

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Prior to 1976, Hastings State Hospital provided the bulk of long-term care for patients residing in Ramsey County and two surrounding counties. This catchment area included the eastern half of the Twin Cities metropolitan area and all urban areas to the Wisconsin border. In 1976, the legislative decision was made to begin the phaseout of this facility with the rationale being that, since it was an older facility, it would be more economical to close the facility and distribute its patient load between two other facilities. This process was begun in 1976 and completed two years later.

One of the immediate impacts was the increase in the number of commitment hearings in Ramsey County. Whereas Hastings had accepted a large number of voluntary patients, the facilities now serving the metro region often demanded patients be formally committed to their facility prior to accepting new admissions.

The staff of the psychiatric unit of the St. Paul-Ramsey Medical Center also perceived their patient population was shifting toward the chronic end of the spectrum with the closing of Hastings State Hospital and set out to study the phenomenon. The present report examines the nature and extent of the increased proportion of chronic patients by considering patient characteristics before and after the closing of this long-term care facility.

The St. Paul-Ramsey Medical Center's inpatient psychiatric unit is designed to serve the needs of patients requiring short-term, acute psychiatric care. The patient population is from the catchment area of Ramsey County, populated by over 457,000 persons. An automated patient registry was implemented by the Department of Psychiatry for the purpose of monitoring the needs and characteristics of the patient population serviced by the department. The present form of the registry consists of a discharge checklist which can be filled out by the staff or abstracted from the chart at closing. The abstracting method was utilized during the calendar year of 1980.

Admissions for 1980 totaled 1,575. These were compared with a random sample of 500 admissions from 1975, which represented the patient population prior to the phasing out of Hastings State Hospital. The sex distribution of the two populations was almost identical with 56% males and 44% females. The age distributions were also comparable with a mean age of 34 years in the earlier group as compared to 36 years for the more recent population.

The two samples were compared on several indicators of chronicity defined as the number of hospitalizations per specified time period. Other indicators of functioning such as employment data were also considered.

As can be seen from the primary diagnosis in Table 1, the proportion of patients in the various diagnostic categories is quite similar from 1975 to 1980. All differences in the frequency of a given diagnostic group are within 5%. Even when all the functional psychoses are combined, they represent 40% of the earlier sample and 45% of the present patient population.

TABLE 1
Primary Diagnoses of Psychiatric Patients

Diagnostic Group	1975 N = 500	1980 N = 1575
	%	%
Organic Disorder	6.6	5.5
Schizophrenia	24.8	22.1
Affective Psychoses	11.0	14.2
Other Psychoses	4.2	8.5
Personality Disorders	9.8	7.2
Chemical Dependency	15.0	20.5
Acute Reaction	10.6	7.4
All Other Diagnoses/ Diagnosis Deferred	18.2	14.6

The more recent patient population appears to reflect a slightly larger proportion of unmarried and unemployed individuals suggesting a slightly lower level of functioning. Approximately half of the earlier patient sample were single as compared to 59% of the more recent sample. Similarly, 54% of the sample from 1975 were unemployed as compared with 64% in 1980. This suggests a trend toward a lower functioning population, and is compatible with a more chronically rehospitalized population.

The rehospitalization rates for the two populations are markedly different. Comparison of the mean number of hospitalizations over the periods of two and five years prior to the present hospitalization revealed much higher rehospitalization rates for the 1980 population. T-tests between the two means were significant at the $P < .001$ Level for both the two and five year periods prior to the current admission. In 1975, the mean number of prior hospitalizations during the preceding five years was 1.4 admissions. By 1980, this had risen to 2.0 admissions which represents a 42% increase in the average number of admissions. Similarly, the admissions over a two year period prior to the current admissions showed marked increases. The average number of previous hospitalizations during the two years prior to admission rose from .8 to 1.3 admissions, representing a 63% increase in the more recent hospitalizations.

Table 2 further illustrates the shift in rehospitalizations since the closing of the state facility. The number of admissions with no previous hospitalizations within two to five years is appreciably reduced. The

proportion of admissions averaging at least one psychiatric hospitalization per year for the last five years has almost doubled, while the number averaging one admission for the last two years has increased from about one-fifth of the admissions to about one-third.

TABLE 2
Comparison of Rehospitalizations

	1975 N = 500 %	1980 N = 1575 %
No Previous Hospitalization Ever	47	38
No Previous Hospitalization in last Five Years	50	42
No Previous Hospitalization in last Two Years	60	49
Five or More Hospitalizations in Last Five Years	9	15
Two or More Hospitalizations in Last Two Years	21	30

The results of the present study strongly underscore the effects of deinstitutionalization on acute health care facilities, primarily on psychiatric units of general hospitals. As state hospitals are closed, acute care facilities are prominently called upon to carry the increasing responsibility of providing services for the chronic mentally ill. This is emphasized by Greenhill who states that the psychiatric unit in the general hospital is the core service to succeed the state hospital.⁸ The evolving pattern is for the chronic patients to cycle through the acute care facilities and back to the community.

This situation raises several compelling concerns. In

view of the cost liability and reductions in medical assistance, the issues of financial responsibility and provision of inpatient services become critical. There is a serious question on the cost effectiveness of utilizing acute care facilities as a means of achieving deinstitutionalization. Many of the apparent savings will obviously be expended for repeated acute care hospitalizations unless a system of adequate community support services can be implemented.

Some acute care facilities may be required to alter their programs in order to appropriately provide more cost effective services for the chronic population. This would mean decreased services for the acute, nonchronically mentally ill patients as beds are used for the chronic patients. Staff morale is hardly enhanced when the same patients tend to cycle through a facility with the same problems of decompensation and behavioral difficulties to be addressed repeatedly. The strain on financial resources is obvious; the burden on human resources and program misdirection are unjustified.

More attention must be paid to the needs of the chronic mentally ill receiving services in acute care hospitals, as deinstitutionalization programs are implemented. Community based programs must have the resources to provide for this patient population. But, even with adequate community resources, additional resources may be required for acute care facilities that are called upon to provide more services to the chronic population formerly cared for at long-term facilities.

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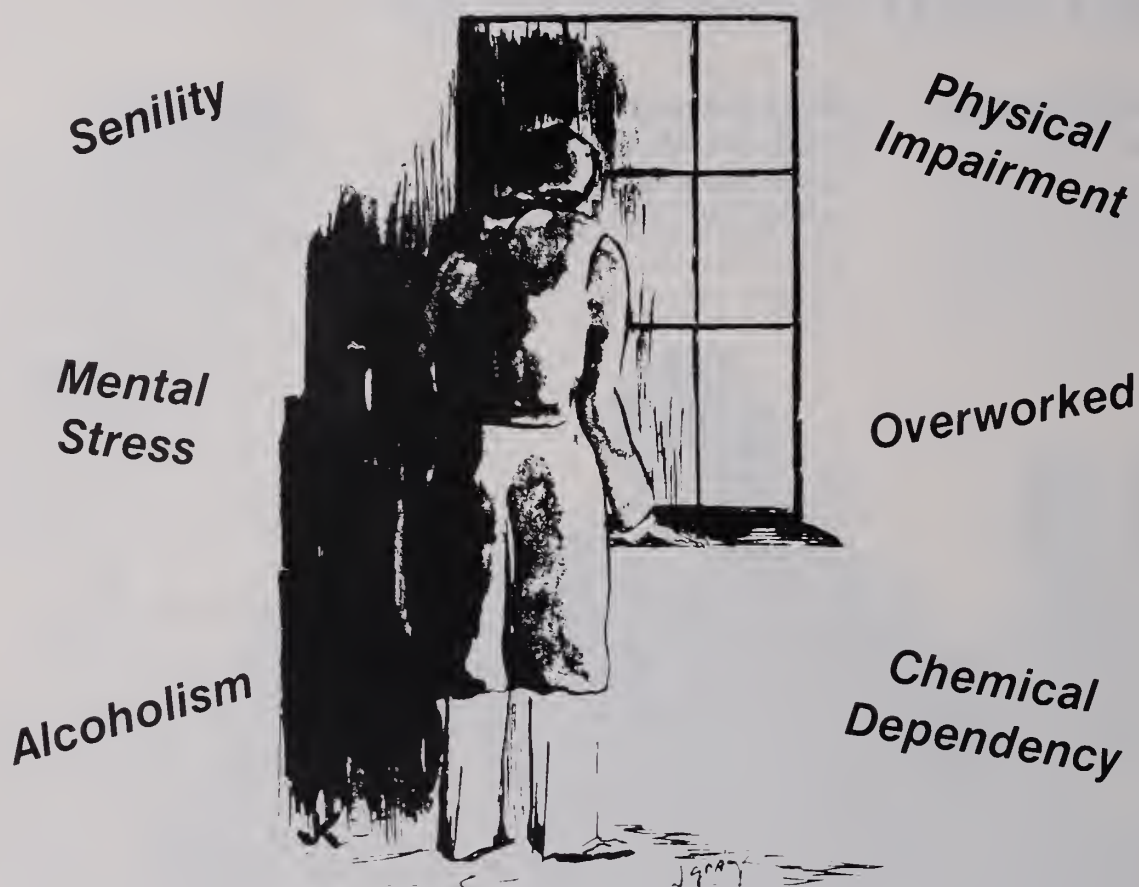
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42 patients in private practice, approximately three times as many patients reported feeling refreshed and alert upon awakening after a night on Dalmane (flurazepam/Roche) compared to placebo nights.² This difference was highly significant ($p < 0.001$). And a retrospective study of 20 hospitalized patients who received Dalmane revealed only a 3.1% incidence of side effects.³

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sion and/or ataxia increases with larger doses in the elderly, it is recommended that the dosage be limited to 15 mg.

Moreover, the efficacy and safety of Dalmane for the treatment of insomnia have been demonstrated in thousands of patients with a variety of primary medical conditions, including cardiovascular, neuropsychiatric, endocrine-metabolic, gastrointestinal, genitourinary, respiratory and musculoskeletal disorders.¹ Dalmane (flurazepam HCl/Roche) is contraindicated in pregnancy and in patients hypersensitive to the drug.

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Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.



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Parenteral and Enteral Nutrition A Cost-benefit Audit

DAVID ROBERTS, M.D.,* DENNIS THELEN, R. Ph.,† SUSAN WEINSTEIN, R.D.‡

Physicians are often confronted with patients in nutritional jeopardy. Five alternatives to the usual oral feedings are reviewed. Enteral hyperalimentation or tube feedings are generally underutilized. They cost the patient only \$21 per day, yet they can meet the caloric needs of most patients. In contrast, central and peripheral venous hyperalimentation cost about \$200 per day and may offer no nutritional advantage over enteral nutrition, unless no portion of the alimentary tract can be found to accept tube feedings. The hyperalimentation literature is extensively reviewed, and further recommendations for cost-effective selection of nutrition alternatives are offered.

THE BENEFITS of parenteral and enteral nutrition have been amply documented in the literature. They include impressive reductions in morbidity, mortality, and length of hospital stay. Although the benefits of adequate nutrition have been well established, the cost efficiency of nutrition therapies has not been adequately addressed. The choice of method — whether intravenous or enteral — has a tremendous effect on cost, and this study will attempt to derive a rational, cost-efficient approach to the patient who cannot eat, will not eat, or cannot eat enough.

Method

Six representative Minneapolis/St. Paul hospitals were chosen for the study. They included large urban and smaller community hospitals, university hospitals, county hospitals, and teaching hospitals. The costs of nutrient solutions, hardware, and laboratory monitoring studies were then audited to derive the current expense of alternate nutrition protocols in the Twin Cities. The figures probably underestimate national averages, because Minnesota has the seventh lowest per-day hospital charges of the fifty states.¹

The five protocols studied were: (1) 5% glucose infusion (2) 10% glucose infusion, (3) peripheral venous hyperalimentation, (4) central venous hyperalimentation, and (5) enteral hyperalimentation (tube feedings). Comparisons of the five alternate nutritional protocols are based on supplying 3000 cc of

the nutrient solution per day for 14 days to an adult (though options 1 and 2 — glucose alone — should never be continued that long). Nutrition prescribing practices were then reviewed in light of cost effectiveness and our current knowledge of nutrition as reflected in the medical literature.

The Benefits

The literature documenting the therapeutic triumphs of hyperalimentation is vast and need not be reviewed here except for a few examples:

- (1) More rapid closure of gastrointestinal fistulae.²
- (2) Increased survival, accelerated healing, and shorter hospitalization of patients with extensive burns.³
- (3) Nutritional management of exacerbations of inflammatory bowel disease.⁴
- (4) Successful nutritional support of the severely traumatized patient.⁵
- (5) Successful nourishment of patients with short bowel syndrome.⁶
- (6) Improved tolerance and response to cancer chemotherapy.⁷
- (7) Increase survival of infants unable to feed orally.⁸

The Costs (Figure 1)

5% Glucose and Electrolytes

This universal "maintenance" solution is not to be taken seriously as far as nutrition is concerned, because a day's ration of 3000 cc provides only 510 Calories. # We feel that this option, which provides only fluid and electrolyte maintenance, should not be fed to the patient for more than two or three days. Despite its poor nutritional value, 5% glucose costs the patient about \$37/day. This includes the cost of a stock solution with pre-added electrolytes, the intravenous catheter changed every three days, and the intravenous

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#Pharmaceutical companies use hydrated dextrose in their solutions, which contain 3.4 kcal/g rather than 3.8 kcal/g. Thus one liter of 5% dextrose provides 170 Calories.

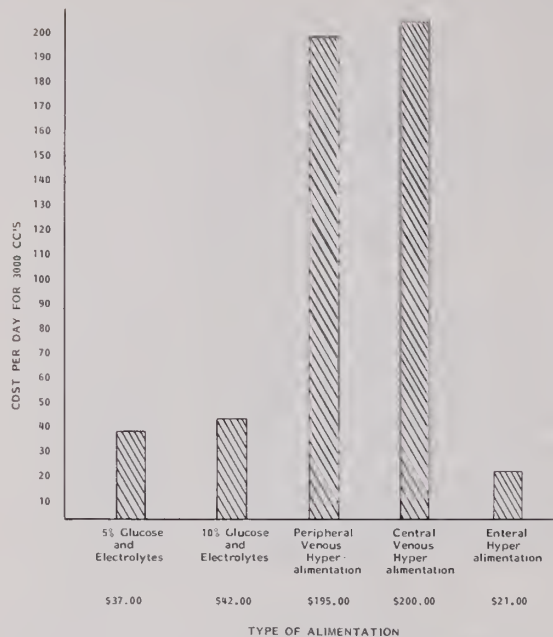


Fig. 1. — Comparative costs of various types of alimentation. (Rounded to the nearest dollar).

tubing changed every day.

10% Glucose and Electrolytes

Glucose is inexpensive, and a stock solution with double the concentration costs about the same as 5% glucose. In addition to fluid and electrolytes, marginal caloric needs are met (1020 Calories/day). This option can be justified for short-term needs, perhaps 3-5 days, but certainly not longer than a week. 1020 Calories represent only about 60% of even the *basal* metabolic requirements of a 70 kg person, and stressed patients usually require over 3000 Calories per day.

Infusing glucose alone represents one form of short-term protein-sparing therapy. Negative nitrogen balance still prevails, but catabolism of endogenous protein is reduced. Others have advocated the peripheral infusion of amino acids alone, arguing that the infusion of glucose raises serum insulin and inhibits lipolysis and the use of endogenous fat stores for energy.⁹ The infusion of 3000 cc of 4.25% amino acids provides only 510 Calories — no more than 5% glucose — yet costs the patient about \$152. More recent articles have questioned the significance of insulin levels^{10,11} and have appropriately limited this form of therapy to patients who were previously well-nourished and who have adequate fat stores, modest caloric requirements, and short-term nutrition needs (seven-10 days).^{12,13} Because of these limitations and the expense, we do not recommend the peripheral infusion of amino acids alone as a nutrition alternative.

The preceding three forms of limited intravenous nutrition cannot be considered *hyperalimentation*.

They are limited to very modest and short-term needs. The three alternatives to be discussed next — peripheral, central, and enteral hyperalimentation — all provide over 2000 Calories per day (Figure 2). General indications for true hyperalimentation include:¹⁴

(a) Prolonged hypermetabolic state exceeding capacity of usual oral feedings (e.g., extensive burns, multiple trauma, major surgery, sepsis). (b) Gastrointestinal disease (e.g. regional enteritis) or disorder (e.g. fistula) preventing use of the gastrointestinal tract for a prolonged period. (c) Loss of 7% of body weight. (d) NPO greater than seven days. Of course, when a patient enters the hospital already malnourished, or when a prolonged NPO state is anticipated, hyperalimentation should begin more promptly.

Peripheral Venous Hyperalimentation^{15,16}

This option is the first to offer total nutrition: adequate Calories, reliable protein sparing, and an anabolic state. Using this method, one can infuse up to 10% glucose, up to 4.25% amino acids, and a fat emulsion, all through a *peripheral* vein. The limitation of glucose and amino acid concentration, plus their dilution with an isosmotic fat emulsion, permit the use of a peripheral vein. Based on the fat emulsion¹⁷ manufacturer's recommendations (limiting fat to 60% of total Calories and 2.5 mg/kg) and the widely accepted need to provide 150 non-protein Calories per gram of Nitrogen,¹⁸ the following infusion rates would be appropriate: 50 cc/hour of fat emulsion plus 75 cc/hour of 10% glucose with electrolytes and 4.25% amino acids. This would provide 76.5 grams protein and 2238 Calories/day. However, the cost of adequate nutrition is high. A liter of fat emulsion at the hospitals we surveyed costs an average of \$68, and a liter of amino acids with glucose costs \$53. The cost of the nutrient solutions alone for 14 days would be \$2478. Additional costs accrue for the IV filter, catheter, parenteral vitamins, calcium, heparin, etc. In addition, one must monitor the patient for metabolic complications: serum turbidity twice weekly, SMA-12 weekly, and sodium/potassium twice weekly. The expense of additives and monitoring brings the total *daily* cost to \$195.

Central Venous Hyperalimentation¹⁹

The use of a central venous catheter permits the use of very hyperosmolar solutions of about 25% glucose plus amino acids. Fat emulsions are still infused peripherally, but only to prevent essential fatty acid deficiency, since Calories can be cheaply provided by glucose. A solution of 4.25% amino acids plus 25% glucose (again using the standard of three liters/day)

provides 3217 Calories/day. Central hyperalimentation carries a higher risk of complications and requires closer (and more expensive) monitoring: chest Xray to confirm catheter position and rule out pneumothorax, frequent blood sugars initially, q.i.d. urine sugars, SMA-12 twice weekly, venous electrolytes (Na, K, Cl, $p\text{CO}_2$, HCO_3) twice weekly, CBC weekly, prothrombin time weekly. Set-up costs are higher for central venous hyperalimentation as well. These include surgical fees for the placement of a central venous catheter, the catheter tray, the catheter itself, and the mandatory chest Xray. The average daily cost thus amounts to \$200, which is still less than the average daily cost of hospitalization in a Twin Cities hospital in 1981, \$329.20.²⁰

Enteral Hyperalimentation²¹

The remarkably low cost of enteral hyperalimentation and its underutilization were the most striking discoveries of this audit. The low cost of hardware and simple monitoring requirements account for a daily charge of only \$21, about one-half the cost of 5% intravenous glucose. Moreover, this option provides 3000 Calories per day.

In many disease or post-trauma states, enteral hyperalimentation is a very viable, but often overlooked treatment for patients not responding to usual oral feedings. The familiar problems of anorexia, chronic nausea, lethargy, and somnolence or sedation frequently cause inadequate oral intake. This results in progressive energy and nutritional deficits. Nutritional supplements are often taken poorly or refused. However, digestive and absorptive capabilities are usually intact and properly chosen nutrient solutions can be used effectively. Adequate nutritional support is simplified by using the gastrointestinal tract, and the major problems of sepsis and metabolic derangement frequently prevented.²² Furthermore, the minimum daily requirements of various nutrients are based on normal oral feeding, and it is unknown if parenteral requirements are the same.²³

If a simple needle jejunostomy is performed intraoperatively, or if the nasogastric feeding tube developed by Moss²⁴ is used, enteral feedings can begin in the recovery room. Postoperative ileus, which usually affects only the stomach and colon, is no contraindication to duodenal or jejunal feedings. Most patients tolerate a simple nasogastric tube quite well.

Conclusions

1. Reduction of hospital stay is a cost-effective advantage of hyperalimentation, because the average daily cost of hospitalization exceeds the

most expensive forms of hyperalimentation.

2. Avoid hyperalimentation in a patient not likely to convalesce and leave the hospital, or in whom palliation is likely to be insignificant.
3. Peripheral hyperalimentation is simpler, but because of the expense of fat solutions, it is not more cost-efficient than central hyperalimentation, despite lesser set-up expense, fewer monitoring requirements and lower complication rate.
4. Use *glucose* for Calories, not fat emulsions or amino acids. (Exception: fat emulsions are necessary in peripheral hyperalimentation to make up the necessary 150 non-protein Calories/gram of Nitrogen.)
 - a. Comparative Costs:
 1. glucose solutions: \$3.53/100 Calories (3.4 kcal/g)
 2. fat emulsions: \$6.18/100 Calories (11.0 kcal/g)
 3. amino acids: \$28.60/100 Calories (4.0 kcal/g)
 - b. Before supplementing Calories from fat emulsions, increase glucose concentration to maximum, adding insulin as necessary.
 - c. Avoid infusing amino acid solutions alone, either centrally or peripherally.
 1. Without another source of Calories, amino acids will not be used for anabolism, but rather will be catabolized — a very expensive source of energy.
 2. Protein-sparing therapy is a possible limited exception, but from a cost-benefit standpoint, it is the poorest of all nutrition alternatives — the patient pays more for less, and loses weight in the process. (.5 to .7 kg/day)¹²
5. In central hyperalimentation, use parenteral fat emulsions sparingly; their main purpose is to prevent essential fatty acid deficiency, and daily infusions are not necessary.
 - a. 500 cc once or twice weekly are sufficient.²⁵
 - b. Essential fatty acid deficiency does not develop for several weeks; therefore it is reasonable to begin fat emulsions at the beginning of the third week of hyperalimentation.^{26,27}
 - c. Some patients may be able to meet their need for essential fatty acids by ingesting 30-60 cc of safflower oil daily,²⁸ and topical application is also possible.²⁹
6. Better communication and cooperation within

the nutrition team — dietitians, nurses, pharmacists, and physicians — will increase efficiency and decrease costs.

- a. To minimize waste of solutions, nurses should be told when a new solution order does not require the replacement of the current bottle before it is empty.
 - b. Use amino acid solutions with pre-added electrolytes; they cost no more, and every addition at the hospital requires pharmacy time and charges.
 - c. To avoid frequent and costly changes of hyperalimentation solutions, use a peripheral IV to correct fluctuating serum electrolytes in circumstances such as gastric suction, diarrhea, or fistula drainage.
7. Finally, "if the gut works, use it," because enteral nutrition is the biggest bargain in nutrition today. The gastrointestinal tract is the safest, simplest, least expensive, and most physiological "catheter" available for alimentation. Moreover, this option requires only simple monitoring and delivers 3000 Calories per day, which is more than all other types of alimentation except central venous. Furthermore, the distribution of carbohydrate, protein, and fat more closely resembles that of a normal diet than the intravenous methods of alimentation (Figure 2).

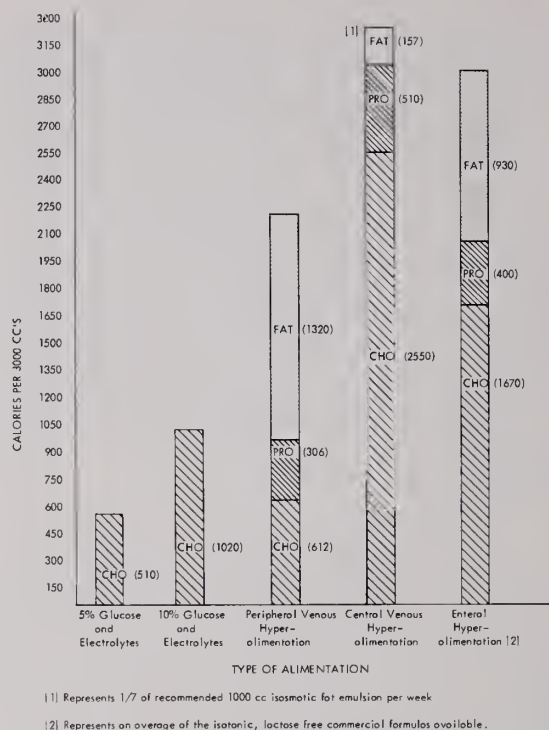


Fig 2. — Comparative calories of various types of alimentation.

Acknowledgment

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Minnesota Medical Association

Smoke-free Hospitals for Minnesota?

THOMAS E. KOTTKE, M.D.*

November 18 will be D-Day once again in Minnesota. This "Don't Smoke Day" has occurred annually since 1974 and is based on the premise that some smokers will quit if they make a pledge to quit for one day and keep it. A statewide telephone survey following last year's D-Day estimated that over 90% of smokers in Minnesota were aware of it, and almost 20% participated.

This D-Day is different because *HEALTHY PEOPLE The Minnesota Experience*[†], has just been released by the Center for Health Statistics, Minnesota Department of Health. It says that while Minnesotans are among the healthiest people in the world, their smoking habits cause significant disability and death.

About 12% of 15-16 year-old girls smoke, while 25% of their male counterparts admit to the habit. Although only 20% of 17-18 year-old men and 25.3% of 19-24 year-old men smoke, the respective figures for women in the same age groups are 27% and 41%. Thirty-four percent of women in the 25-44 year age group smoke, as opposed to 37% of the men in that group. Smoking among older Minnesotans is less prevalent, only 19% of all Minnesotans over 59 smoke.

The Surgeon General estimates that because of these habits, lung cancer will overtake breast cancer as the leading cause of death in women by 1985. Already 17% of deaths among men and women in the 45-64 age group are attributable to smoking. The lung cancer epidemic continues to be a major reason why mortality rates due to cancer have not declined over the last three decades while the rates of almost all other chronic

diseases have.

Although the American public expects the health message to come from their physicians, physicians tend not to provide services like smoking-cessation programs which the patient does not seek and which do not even permit recovery of costs.

The University of Minnesota Heart Hospital has taken a stand to provide a firm, strong, and constant message that smoking is the number one health problem in Minnesota. All patient care areas of the hospital have been made non-smoking areas in their entirety. The standard Minnesota Clean Indoor Air Act signs are being replaced with signs that read, "As a reminder that . . . NOT SMOKING is the most important action you can take to protect your heart, smoking is not allowed in the Heart Hospital. Thank you for your cooperation."

Too harsh? The heart attack victim who stops smoking can expect to live up to twice as long as the one who continues to smoke. One study demonstrated that 62% of post-infarction smokers stopped when firmly and repeatedly counseled by their physician to do so. Studies from Johns Hopkins University show that the smoking heart patients who remain abstinent in the hospital are almost the only ones to stay off cigarettes after discharge.

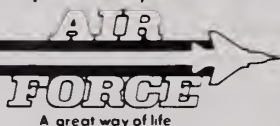
We find that when patients start smoking again, it is not as an angry suicide gesture. Usually it's when they find themselves in a warm and relaxed situation where friends or family are having a cigarette. We elected not to allow that situation to take place in the University of Minnesota Heart Hospital lobby. Since helping patients stop smoking is the most powerful intervention we physicians can make to keep them alive, shouldn't all Minnesota hospitals provide that service by being smoke-free areas?

*Assistant Professor of Medicine and Physiological Hygiene and Director of Cardiac Rehabilitation, University of Minnesota. Member of the 1982 Minnesota D-Day Committee.

[†]A compilation of surveys and vital statistics.

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National Foundation for Ileitis & Colitis

The Minnesota Chapter of the National Foundation for Ileitis & Colitis has recently been chartered, one of 38 nationwide chapters with a total membership of over 15,000.

It has been organized to provide public education and information on Crohn's disease and ulcerative colitis, to raise funds for research, and to provide support for patients and their families.

In addition to the chapter officers, those active in the formation of the Minnesota Chapter are Dr. David I. Weinberg and Dr. John I. Allen, co-chairmen of the chapter's Scientific Advisory Committee, and other Committee members including Dr. I. Dodd Wilson, Chief of Gastroenterology, University of Minnesota, and Dr. Roger L. Gebhard of Veterans Hospital.

The Minnesota Chapter will hold its first public educational meeting at 7:30 p.m.; November 30, at Abbott-Northwestern Hospital Auditorium building on the corner of 26th Street and Elliot Avenue South, Minneapolis.

For further information, contact Minnesota Chapter NFIC, Box 8165, Saint Paul, MN 55113 or Dr. John I. Allen — 725-6767, Rita Hattouni — 781-0812.

Drug Profiles

Theophylline

RICHARD BRUNDAGE, B.Sc.*

Absorption

Theophylline is well absorbed from the GI tract and is highly bioavailable. Onset of action and duration of effect is highly variable among the different oral theophylline products. Rectal absorption is erratic and IM administration is painful.

Distribution

The steady-state volume of distribution of theophylline generally ranges from 0.45 to 0.50 l/kg. Protein binding ranges from 55% to 63% at therapeutic serum concentrations. There is evidence that theophylline is actually a two-compartment drug with a central compartment volume of 0.3 l/kg. The distributive phase is one-half to one hour. This second compartment is often ignored in clinical practice, but could account for unexpected plasma levels when dosing the drug.

Metabolism and Elimination

Theophylline is extensively metabolized by the liver, with less than 10% excreted unchanged in the urine.

Half-Life

Plasma half-life in adults typically ranges from three to 10 hours, with an average of about five hours. Caution must be exercised with a stated half-life, however, as a number of factors can prolong the half-life significantly, and half-lives up to 80 hours have been documented. Factors that decrease the clearance of theophylline include CHF, liver dysfunction, respiratory infection, and pulmonary edema.

Interactions

Theophylline can be used safely with most other drugs. Cimetidine and erythromycin, two drugs often used in elderly patients, have been demonstrated to decrease the clearance of theophylline. Cigarette smoking can stimulate metabolism and increase theophylline clearance.

Dosage Considerations

Several studies have looked at the effect of certain diseases on theophylline clearance. While the results do not indicate specific dosage adjustments, they do suggest that patients whose clinical picture is complicated by the disease may have a very different theophylline disposition.

acute pulmonary edema:

mean half-life prolonged to 22.9 hours (from 6.7 hours)

hepatic cirrhosis:

mean half-life prolonged to 25.6 hours (from 6.7 hours)

Congestive heart failure, respiratory infection, concurrent administration of erythromycin or cimetidine, and possibly obesity have all been demonstrated to increase plasma half-life and decrease theophylline clearance.

Clinical Comments

Theophylline is a useful bronchodilator that can be used safely in older patients. It has an optimal therapeutic range between 10 and 20 mcg/ml, with the incidence of toxicity increasing as blood levels exceed 20 mcg/ml. These side effects include nausea, vomiting,

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anorexia, and cardiac arrhythmias, and are nonspecific at any age. It is particularly easy in older patients, however, to attribute these effects to other causes. More extreme side effects of seizures and cardio-respiratory arrest occur at doses usually greater than 40 mcg/ml. Seizures as a first and only side effect have occurred at levels under 40.

Since half-lives and clearances can vary so dramatically and toxicities are frequently encountered, dosages should be individualized on the basis of blood levels and pharmacokinetic parameters.

Patients receiving chronic theophylline therapy may require periodic adjustments in dosing secondary to age related changes in renal and hepatic function that result in a slowly decreasing theophylline clearance. The acute development of CHF, liver disease, or pulmonary edema may significantly decrease the clearance of theophylline and necessitate a dosage adjustment.

For patients receiving theophylline as a new order in an acute care setting, factors that prolong the half-life should be identified before prescribing a dose. If the patient has CHF, liver disease, or pulmonary edema, the maintenance dose can be cut in half as a rule of thumb. Since these disease states do not significantly affect the volume of distribution of theophylline, the loading dose does not need to be changed. Blood levels should be monitored when these diseases are present because as the patient improves clinically, the clearance of theophylline could increase and result in lower plasma levels.

The February 1980 FDA Bulletin provides the following aminophylline dosage guidelines.

Group	Loading Dose	Maintenance Dose for next 12 hrs	Maintenance Dose beyond 12 hours
Children, 6 months to 9 years	6 mg/kg *(5)	1.2 mg/kg/hr *(1.0)	1.0 mg/kg/hr *(0.85)
Children, 9-16 yrs. and young adult smokers	6 mg/kg *(5)	1.0 mg/kg/hr *(0.85)	0.8 mg/kg/hr *(0.7)
Otherwise healthy nonsmoking adults	6 mg/kg *(5)	0.7 mg/kg/hr *(0.6)	0.5 mg/kg/hr *(0.43)
Older patients and patients with cor pulmonale	6 mg/kg *(5)	0.6 mg/kg/hr *(0.5)	0.3 mg/kg/hr (0.26)
Patients with congestive heart failure, liver disease	6 mg/kg *(5)	0.5 mg/kg/hr *(0.4)	0.1-0.2 mg/kg/hr *(0.1)

*Equivalent anhydrous theophylline dose indicated in parentheses.

All doses estimated on lean body weight.

Loading doses assume the patients are not currently receiving theophylline products.

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Annual Meeting
Minnesota Medical Association
Radisson South — Bloomington
May 18-20

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program: Primary sponsor; Location; Contact person.

November, 1982

4-5 Chemical Abuse Problems: A Practical Approach for Office Practice; U of M Medical School; St. John's Hospital, St. Paul; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

7 Update in Cardiology; Mayo Foundation/Mayo Clinic; Mayo Clinic; CONTACT Postgraduate Courses, Mayo Clinic, Rochester, MN 55905, 507/284-2085.

8-9 Medical/Legal Management of Workplace Health; Midwest Center for Occupational Health and Safety; Spring Hill Conference Center, Wayzata; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

12 Annual E. T. Bell Pathology Symposium; U of M Medical School; U of M, Mpls.; CONTACT CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. S.E., Mpls., MN 55455, 612/373-8012.

12 Problems in Vascular Disease; The Duluth Clinic; St. Mary's Hospital, Duluth; CONTACT J. G. Brueggemann, M.D., Director of Medical Education, 400 East 3rd St., Duluth, MN 55805, 218/722-8364.

12 Quarterly Clinical Meeting; Minnesota Dermatological Society; St. Paul Ramsey Hospital; CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Mpls., MN 55415.

13 Fall Meeting, Minnesota Society of Anesthesiologists; L'hotel Sofitel, Mpls.; CONTACT: David E. Byer, M.D., 200 1st St. S.W., Rochester, MN 55901.

12-13 Common Problems in Medicine; St. Louis Park Medical Center Research Foundation; Marriott Hotel, Bloomington; CONTACT Elaine Anderson, St. Louis Park Med. Ctr. Research Foundation, 5000 W. 39th St., Mpls., MN 55416, 612/927-3350.

13 Fall Meeting, Minnesota Society of Clinical Pathologists; U of M Mpls.; CONTACT Eugenia Stamboulieh, MSCP, 2221 University Ave. SE, Suite 400, Mpls., MN 55414, 612/378-1875.

15 & 17 Basic Life Support Course; North Memorial Medical Center; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

16 Orthopedics; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

17 Dermatology; Central Mesabi Medical Center; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

17-18 Advanced Cardiac Life Support Course; North Memorial Medical Center, NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

19 Neonatal Resuscitation; North Memorial Medical Center; NMMC; CONTACT: Milton E. Baker, M.D., 3220 Lowry Ave. No., Mpls., MN 55422, 612/520-5565.

19-20 Perspectives in Clinical Oncology for Primary Care Physicians; St. Joseph's Hospital; St. Joseph's Hospital, St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

20 Medical Aspects of Nuclear War; U of M Medical School; U of M West Bank, Mpls.; CONTACT: CME, U of M, Box 293 Bayo Bldg., 420 Delaware St. SE, Mpls., 55455, 612/373-8012.

December, 1982

1-2 Basic Cardiac Life Support Instructor Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

3 15th Annual OB-GYN Symposium; North Memorial Medical Center; NMMC, Mpls.; CONTACT: Philip Marcus, M.D., 3220 Lowry Ave. No., Mpls., MN 55422, 612/588-0616.

3 Frontiers in Medicine; St. Joseph's Hospital; St. Joseph's Hospital, St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

4 Semi-annual Meeting; Minnesota Obstetrical and Gynecological Society; Minneapolis; CONTACT: Mrs. Cammy Kelley or Dr. Carolyn B. Coulam, Mayo Clinic, 200 1st St. SW, Rochester, MN 55905.

7 Basic Cardiac Life Support Instructor Recertification; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

9-11 Coronary Heart Disease: A Comprehensive Review of Principles and Practice; St. Paul-Ramsey Medical Center; Radisson Plaza, St. Paul; CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13 & 15 Basic Cardiac Life Support Course; North Memorial Medical Center, Mpls.; NMMC; CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

14 Oncology; Central Mesabi Medical Center, Hibbing; CMMC; CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

15 Pediatrics; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

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January, 1983

13 OB/GYN; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

27-February 11 South African Adventure; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Mpls., MN 55414, 612/378-1875.

29-February 5 Winter Seminar, **Caribbean Cruise;** Minnesota Academy of Family Physicians; San Juan; CONTACT: Chari Konerza, MN Academy of Family Physicians, 2221 Univ. Ave. SE, Suite 426, Mpls., MN 55414, 612/623-9559.

February, 1983

6-13 Jamaican Adventure; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Ste. 400, Mpls., MN 55414, 612/378-1875.

9-10 Drug Therapy Symposium; U of M Medical School; Location undetermined; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

9-11 Training in Pulmonary Function Testing/Spirometry; Midwest Center for Occupational Health & Safety; St. Paul-Ramsey Medical Center; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

11 Quarterly Clinical Meeting; **Minnesota Dermatological Society;** Hennepin County Medical Center; CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Mpls., MN 55415.

15 Psychiatry; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

17-18 Chemical Abuse Problems: A Practical Approach for Office Practice; U of M Medical School; St. Mary's Hospital, Mpls.; CONTACT: CME, U of M, Box 293 Mayo Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

19-26 Annual Meeting; **Minnesota Psychiatric Society;** Colorado; CONTACT: Joseph Westermeyer, M.D., Box 393, Mayo Bldg., U of M Hospitals, Mpls., MN 55455.

25-26 (Tentative) ENT Problems/**Primary Care;** U of M Medical School; Location undetermined; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

25-26 Interdisciplinary Approach to Treatment of the Critically Ill Patient; St. Paul-Ramsey Medical Center; Radisson Plaza Hotel, St. Paul; CONTACT: Ruth McIntyre, CME, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

March, 1983

3-5 Clinical Therapeutics — 1983; St. Paul-Ramsey Medical Center; Radisson Plaza Hotel, St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

For further information on *future* CME programs, contact Department of Education & Specialty Affairs, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

16 Rheumatology; St. Joseph's Hospital, Brainerd; CONTACT: M.A. Meusing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

16-26 Caribbean Air/Sea Cruise; North Central Medical Conference; CONTACT: Karen Tourdot, Minnesota Medical Association, 2221 Univ. Ave., Minneapolis, MN 55414, 612/378-1875.

17-19 Cardiopulmonary Medicine, 1983; St. Paul-Ramsey Medical Center; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

19 4th Annual Update Occupational and Environmental Pulmonary Diseases; Midwest Center for Occupational Health & Safety; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

24-25 Ob/Gyn Update, 1983; St. Paul-Ramsey Medical Center; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

April, 1983

6-7 Behavioral Medicine; U of M Medical School; Kaufman Memorial Union Theater, Mpls.; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

8-9 Colorectal/Primary Care; U of M Medical School; Earle Brown Center, St. Paul; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

13-15 Annual Spring Refresher; **Minnesota Academy of Family Physicians;** Radisson South, Bloomington; CONTACT: Chari Konerza, MN Academy of Family Physicians, 2221 Univ. Ave. SE, Suite 426, Minneapolis, MN 55414, 612/623-9559.

16 Spring Meeting; **Minnesota Society of Anesthesiologists;** CONTACT: David E. Byer, M.D., 200 1st St. S.W., Rochester, MN 55901.

21-23 Allergy and Immunology; U of M Medical School; Mayo Memorial Auditorium, Minneapolis; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

22 11th Annual Pediatric Challenges for Primary Care Physicians; Mpls. Children's Health Center; MCHC; CONTACT: James Moore, M.D., Indian Health Board, 2495 — 18th Ave. So., Minneapolis, MN 55404, 612/721-7425.

23 Spring Meeting; **Minnesota Urological Society;** Minneapolis; CONTACT: Robert P. Myers, M.D., Dept. of Urology E 17A, Mayo Clinic, Rochester, MN 55905.

25-26 Vitreo-Retinal Disease; U of M Medical School; Holiday Inn, Minneapolis; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

May, 1983

19-20 1983 Scientific Program; Minnesota Medical Association; Minneapolis; CONTACT: Eugenia C. Kassir, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

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Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

FAMILY PHYSICIAN SW Minnesota rural primary care group (8 FP, 2 Surgeons, 1 Pediatrician, 1 Internist) in agricultural-commercial-university town of 11,000 needs BE/BC FP to maintain and develop patient-oriented group practice. Recently completed hospital and clinic share facilities in medical complex. Usual Chamber of Commerce Claims nearly true here! C. P. Martin, M.D., Doctors' Plaza, Marshall, MN 56258 #(507) 532-9631.

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INTERNIST-CARDIOLOGIST, INTERNIST-NEPHROLOGIST specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call J.P. Merickel, M.D., 612-231-5000.

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ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

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GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

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OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

CENTRAL WISCONSIN, a 50 physician multi-specialty group has openings for physicians in the following specialties: Otolaryngology, OB/GYN, Cardiology, Neuroradiology and General Surgery with a fellowship training in Peripheral Vascular Surgery. Competitive first year salary, incentive plan thereafter. Comprehensive fringe benefits. New facility near new hospital. Located in beautiful, quiet, central Wisconsin metropolitan area of 65,000. Recreational opportunities abundant. For more information contact: K. L. Day, M.D., Wausau Medical Center, S.C., 2727 Plaza Drive, Wausau, WI 54401 or call collect (715) 847-3351.

FAMILY PHYSICIAN FOR PROGRESSIVE RURAL MINNESOTA CLINIC. New and superbly-equipped facility. A pleasant farming community in a physician shortage area, yet only 25 minutes from a metro area. A comfortable call schedule at nearby hospital. Gateway to Minnesota's famous lake country. Young and growing practice with excellent salary and benefits, ownership potential. Must be board-eligible. Call or write to Mr. David A. Nelson or Faris Keeling, M.D. at 218-354-2111 or write to Barnesville Area Clinic, P.O. Box 521, Barnesville, MN 56514.

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

FAMILY PHYSICIAN to join group of six Board Certified Family Practitioners and one Board Certified General Surgeon. Liberal vacation and educational allowances. Competitive salary first year with incentive bonus, and full membership after one year. Blue Earth is a farming town of 4000 in Southern Minnesota with a drawing area of 25,000. 35 bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013. Phone: (507) 526-7371, Personal Phone: (507) 526-3177, Or Contact: Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

PATHOLOGIST for Locum Tenens — Board Certified (AP/CP) pathologist with experience in cytopathology seeks 1-2 week locum tenens position in Minnesota. Contact Stephen Bartold MD, 1536 Tenth Ave. S.E., Rochester, MN 55901. (507) 281-0377.

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(continued to page 720)

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(Continued from page 719)

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LA CROSSE — DYNAMIC 52-physician multispecialty clinic is recruiting in the following specialties: General/Vascular Surgery, Neonatology, Neurology, Ophthalmology, Family Practice. Strong in primary and secondary care, we have six active satellite clinics. Modern 350-bed hospital with CT scanner and medical staff of 92 M.D.'s, including neurosurgeon, immediately adjacent to clinic building. La Crosse is a progressive, family-oriented city of 50,000 in the beautiful Mississippi River Valley with a medical referral area of greater than 200,000. Exceptional cultural, educational and recreational opportunities locally. Contact: P. S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 S. 10th St., La Crosse, WI 54601. Phone (608) 782-9760.

OPENINGS NOW AVAILABLE in Family Practice, OB-GYN, and Orthopedics. The Albert Lea Medical & Surgical Center, Ltd. is actively recruiting for the above positions to be filled hopefully by July-August 1983. We are an eighteen man multi specialty group with excellent benefits. Full participation after the first year. No accounts receivable buy in; incentive income plan; full and complete medical and life insurance coverage; excellent pension profit sharing program. We are recruiting family practitioners for near by satellite clinics. All moving costs assumed by the clinic. Contact G. C. Wilcox, M.D. at clinic (507) 373-1441 or at home (507) 373-6974, or the Clinic Administrator C. C. Lowery at clinic (above), or at home (507) 373-8083.

MARSHFIELD CLINIC, a major multispecialty referral center, is seeking family practitioners for outpatient satellites. Rural location in beautiful central Wisconsin. Excellent salary and fringe benefits. Must be board certified/eligible. Send curriculum vitae to Frederic P. Westbrook, M.D., 1000 N. Oak Avenue, Marshfield, WI 54449.

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FAMILY PRACTICE OPPORTUNITY for Waverly, Minnesota. Join group of 2 Family Practitioners in neighboring Winsted. Rural setting, 45 minutes West of Minneapolis. 25 bed Community Hospital with 100 bed Nursing Home attached. \$50,000 first year guarantee plus benefits. Inquire Thomas A. Kiefer, M.D. or Albert M. Sheldon, III, M.D., Winsted Clinic, P.A., Winsted, MN 55395 1-612-485-4151.

GENERAL/FAMILY PRACTITIONER Busy practice in progressive, rural community. Practice includes rotating satellite clinic and call schedules. Salary minimum of \$50,000 and negotiable, excellent benefits, moving/interview expenses, corporate membership available. Well equipped hospital. Abundant recreation. For more information call 701-246-3391, extension 59 or 50, or submit resume to Rolette/Dunseith Clinic, Box 508, Rolette, N.D. 58366.

DERMATOLOGIST, Board certified/eligible to join progressive multi-specialty group of 40+ physicians. Pleasant growing community. Many outdoor recreational opportunities. High quality of life. Referral area, 150,000. Liberal financial benefits. Send curriculum vitae and references, Attn: T. A. Breen, M.D., 101 Willmar Avenue, Willmar, MN 56201.

OB/GYN SPECIALISTS. Enjoy the security of group practice with the freedom of independent practice. If you are Board Certified or Board Eligible in OB/GYN, we have an interesting opportunity for you. Two specialists are needed immediately to form an independent OB/GYN practice in a very desirable Northern Wisconsin community with a drawing population of 70,000. Active practice assured. All major specialists available for consultation. Business and technical advice will be provided. Outstanding personal benefit programs available. Good income potential. New 35 million dollar hospital. For further information write: Administrator, P.O. Box 1646, Wausau, Wisconsin 54401.

ALL OF THE ADVANTAGES . . . An opportunity to practice primary care with a progressive group of physicians that values quality medicine, patient and family — centered practice, continuity of care, service to the community, and group compatibility in a location where the advantages of the Twin Cities are easily available but in a small town with the freedoms of a slower paced atmosphere.

This four-physician Family Practice is interviewing for two Family Practitioners to join the group to meet the patient needs in Glencoe and Lester Prairie, Minnesota. Glencoe is an ideal community — excellent schools, established industry and commerce, accredited hospital — and is only 53 miles from Minneapolis/St. Paul.

We welcome your interest and questions. Please contact Donald B. Rudy, M.D. or Gary Van House, Administrator, Glencoe Medical Clinic P.A. 525 East 18th Street, Glencoe, Minnesota 55336, (612) 864-3116.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

(continued on page 722)

Classified Advertisements

(continued from page 721)

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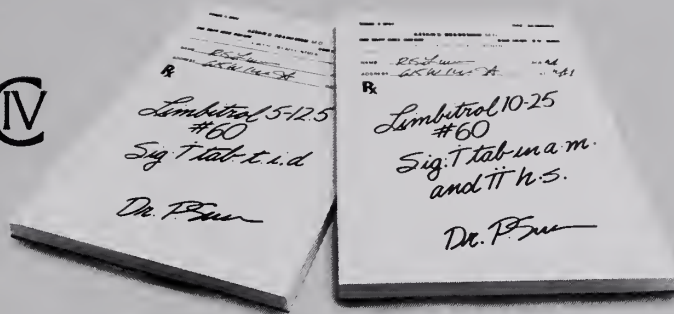
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References: 1. Claghorn J: *Psychosomatics* 11:438-441, Sept-Oct 1970. 2. Rickels K: Drug treatment of anxiety, in *Psychopharmacology in the Practice of Medicine*, edited by Jorvik ME. New York, Appleton-Century-Crofts, 1977, p. 316. 3. Boldessarini RJ, Torsy D: Tardive dyskinesia, in *Psychopharmacology: A Generation of Progress*, edited by Lipton MA, DiMascio A, Killam KF. New York, Raven Press, 1978, p. 999.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Relief of moderate to severe depression associated with moderate to severe anxiety

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use; then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients. Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs. Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline, symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of

suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, over sedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

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Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns.

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract.

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Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels.

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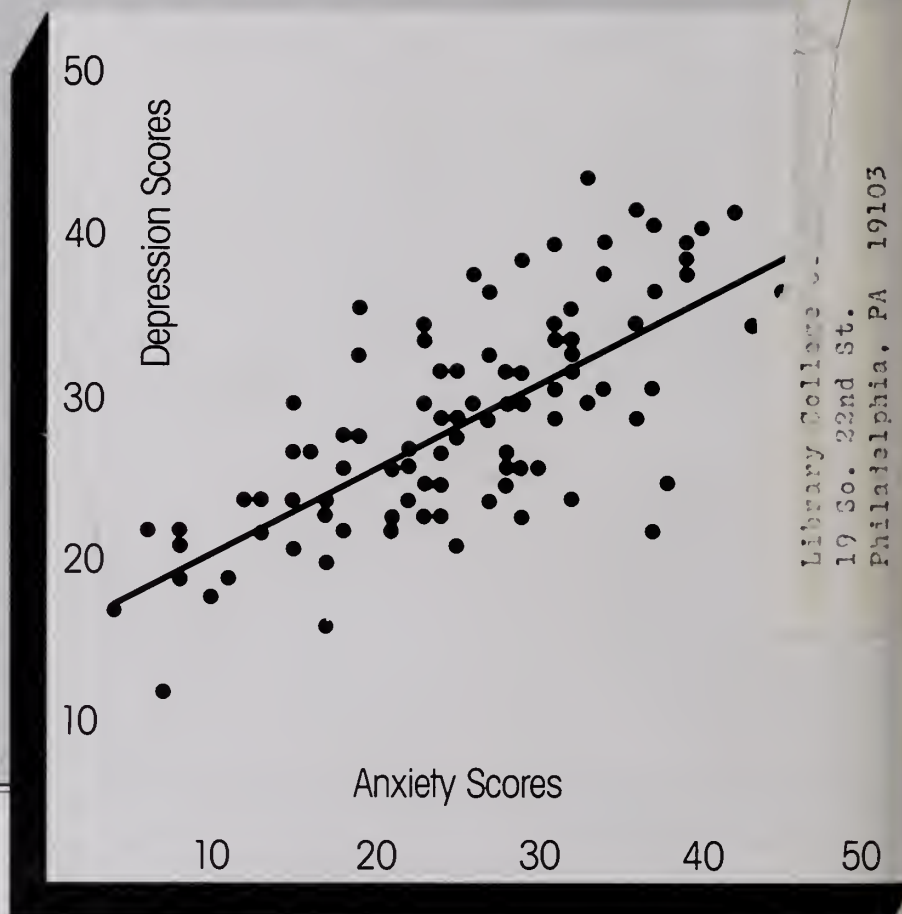


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—Adapted from Claghorn J¹



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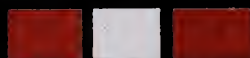
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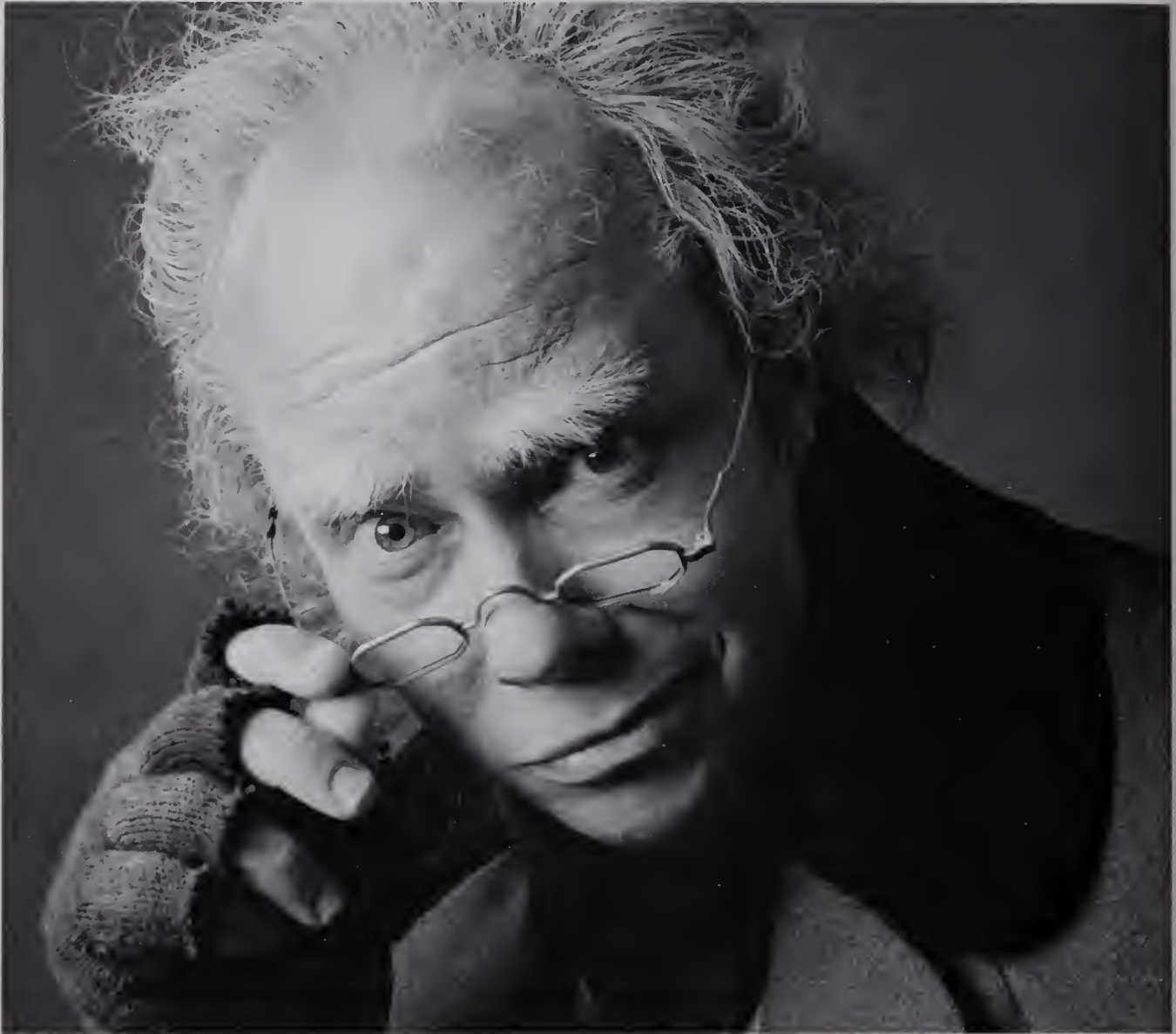
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President's Letter



Ireland, Its People and Medicine

During the first two weeks of October my wife and I journeyed to Ireland fulfilling a life-long desire to visit the countryside and its people. As we traveled, we found that the realization far exceeded our expectations. It is a country noted not only for its natural beauty but more importantly for the beauty of its pleasant people.

While we were in Dublin, we spent time with Dr. Noel Reilly, the Secretary General of the Irish Medical Association. Dr. Reilly has held that office for twenty-five years but will be retiring at the end of this year. We were very pleased that he graciously allowed time for an interview with us. He was candid and open in answering our questions.

Because of the similarity in geographical size and population, we attempted to make comparisons between the Irish Medical Association and the Minnesota Medical Association. Our problems, in many ways, are similar, but there are some obvious differences. As Dr. Reilly brought to our attention, Ireland is a very poor, basically agricultural country. Although in Minnesota we have three medical schools, Ireland has five. At the present time, Ireland is doubling the number of physicians it needs. This is compounded since immigration to other countries has become more difficult in the last few years.

He emphasized the fact that Ireland does not have a national health insurance. Instead they have a potpourri of medical services which are uniquely designed to the island of Ireland. As in most European countries, the specialists or consultants are hospital-based and the primary care physicians, as a rule, do not have a hospital practice. The truly indigent are taken care of by virtue of government payments. In addition, there are varying scales of payment, both out of pocket and by the government, depending on one's wages.

Of great interest is the fact that over the past few years a voluntary health insurance program has been initiated to fill some of the gaps in the system. At the present time approximately 30% of the Irish people have this private medical insurance.

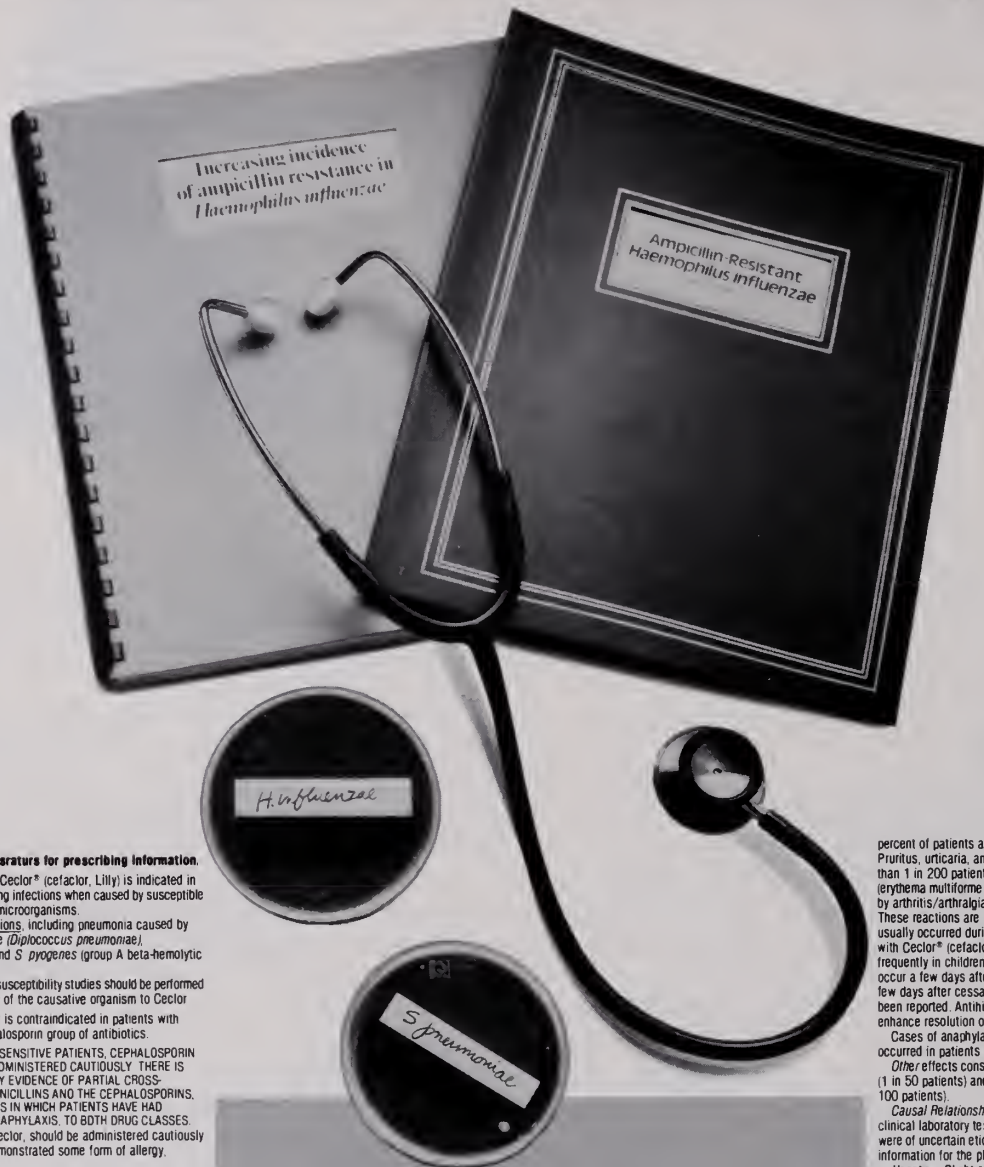
Dr. Reilly was extremely knowledgeable about the American and European medical scenes. When asked to comment on his quarter-of-a-century experience as head of the Irish Medical Association, two areas concerned him. The first was technology. He felt that we are showing too much concern with technology to the detriment of the patient and at an extremely high cost. His other concern was interesting. Increasing competition, he feels, in the long run may affect the quality of medical care.

As we flew out of Shannon airport and headed for home, my wife and I knew that together we had experienced a most pleasant period. We had visited many of the larger cities but found our greatest pleasure was in the country-side, especially the craggy peninsulas of the southwestern part of Ireland. We stayed whenever possible in pensions visiting with the private families. Their hospitality and courtesies seemed endless. In fact, we often commented that it was a continual holiday feeling traveling throughout Ireland.

So as we approach our own Christmas holiday season, my wife and I extend to all of you and your families that familiar Irish salutation . . . God Bless. May the winds always be at your back.

Severin H. Koop, M.D.
President
Minnesota Medical Association

An added complication... in the treatment of bacterial bronchitis*



Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Cefclor* (cefclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms.

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cefclor.

Contraindication: Cefclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cefclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Precautions: If an allergic reaction to cefclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of cefclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs test may be due to the drug.

Cefclor should be administered with caution in the presence of markedly impaired renal function. Under such a condition, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cefclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistix[®] tablets but not with Tes-Tape[®] (Glucose Enzymatic Test Strip, USP, Lilly).

Usage in Pregnancy: Although no teratogenic or antifertility effects were seen in reproduction studies in mice and rats receiving up to 12 times the maximum human dose or in ferrets given three times the maximum human dose, the safety of this drug for use in human pregnancy has not been established. The benefits of the drug in pregnant women should be weighed against a possible risk to the fetus.

Usage in Infancy: Safety of this product for use in infants less than one month of age has not been established.

Adverse Reactions: Adverse effects considered related to cefclor therapy are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70) and nausea and vomiting (1 in 90).

As with other broad-spectrum antibiotics, colitis, including rare instances of pseudomembranous colitis, has been reported in conjunction with therapy with Cefclor.

Hypersensitivity reactions have been reported in about 1.5

Some ampicillin-resistant strains of *Haemophilus influenzae*—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Cefclor.¹⁻⁶

In clinical trials, patients with bacterial bronchitis due to susceptible strains of *Streptococcus pneumoniae*, *H. influenzae*, *S. pyogenes* (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Cefclor.⁷

Cefclor[®]

cefclor

Pulvules[®], 250 and 500 mg

percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthritis, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cefclor* (cefclor). Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200). (1002818)

*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Cefclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc. Carolina, Puerto Rico 00630



Editor's Notebook

Texas Talk

"When you're from Texas, it's hard to be humble."

Slogan on T-shirt on sale
at Houston airport

November 1, Hyatt Regency Hotel, Houston, Texas — I'm here to give a talk, "How To Edit Your Medical Paper To Make It Readable," before the Annual Assembly of the American Academy of Physical Medicine and the Annual Session of the American Congress of Rehabilitative Medicine (and *I thought* government agencies had long titles). The gist of my talk? Edit your paper enough so your reader doesn't have to wear boots to read it.

Meat of Talk

I'll share with you the meat of what I had to say. To the rhetorical question, "What are the hallmarks of a readable medical paper?", I responded:

"It is a paper that attracts, grips, and holds your attention. It is a paper that informs and educates. It is a paper written accurately, clearly, and concisely. It is a paper that has something to say, says it, and stops when it has said it. It is a paper that follows the IMRAD format (Introduction, Methods, Results, and Discussion); that defines its subject, orients its readers, and explains its purpose in its first paragraph; that describes its materials and methods in sufficient detail so its readers can repeat its procedures exactly; and that develops its theme coherently, logically, and briefly, with just enough tables, illustrations, and graphs to clarify and document the text. Above all, it is a paper that bears the imprint of a writer who has ruthlessly edited his own paper with these rules in mind (with apologies and thanks to George Orwell, W. A. Fowler, Anatole France, E. B. White and other masters of the King's English).

Reece's Rules of Readability

1. Remember there is no good writing, only good rewriting.
2. Replace the far-fetched word with the familiar.
3. Make the abstract concrete.
4. Prefer the single word to the circumlocution.
5. Choose the short word over the long.
6. Speak naturally rather than in the habitual goobledgook of your specialty.
7. Avoid clichés or other expressions you are used to seeing in print.
8. Cut out all possible words.
9. Write in active rather than passive voice.
10. Simplify so every word counts.
11. Use personal pronouns "I" and "we" to achieve directness, clarity, and brevity.
12. Shorten sentences; keep them an average of 18 words or less.
13. Go easy on polysyllabic words of three syllables or more, keeping them down to less than 15 per 100 words.
14. Crop and tighten paragraphs; aim for an average of 125 words or less.
15. Insert subheadings as signposts so your reader can follow the flow, logic, and development of ideas.
16. Rearrange sentences to rid them of the words *that*, *by*, *which*, *who*, and *whom* because these words are danger signs of longwindiness.

17. Use strong transitive verbs rather than weak forms of the verb *to be*: *is, am, are, was, and were*.
18. Excise these weak qualifying adjectives — *very, quite, much, rather, somewhat, and approximately*.
19. Search for nouns ending in *-ion* and convert them into verbs.
20. Give rhythm to your prose by varying sentence length and sentence type, asking rhetorical questions, and even throwing in sentence fragments.
21. Let your prose speak for itself, keeping your opinions to yourself and not overstating your case.
22. Revise your paper after letting it rest in a drawer for a couple of days, then re-attack it with a fresh mind.
23. Read your work aloud and ask: "Would I say that to a friend?" for a spark of human understanding must exist between writer and reader, just as it does between friends.
24. Cultivate unsparing critical colleagues and encourage them to evaluate your work.
25. Show your readers the courtesy of translating the less familiar into the more familiar, the complex into the simple, and the vague into the precise.
26. Think critically, document your findings, and cover your subject.
27. Throw your paper out and rewrite it if the paper makes the simple complex.
28. Break any of these rules if they offend your stylistic or scientific sensibilities."

That, in a nutshell, is all I know about editing medical papers to make them readable, which is more than I know about Texas. I am writing this from a hermetically sealed hotel room. Because of oppressive humidity and universal air conditioning, you can't open and close hotel windows in Houston (if that makes you uncomfortable, you can always feel the panes). The bellhop informed me hotel rooms are sealed to keep fresh cool air in and polluted hot air out (except at political conventions, when the reverse holds true).

How Hot Is Houston?

One thing for sure. It's hot here. How hot is it? It is so hot people put their flowers in the refrigerator to give them a rest from the heat. It is so hot it rarely freezes. It is so hot that a typical year has 81 90-degree days (compared to 15 in Minneapolis), and the average number of cooling degree days per year is 2889 (versus 585 Minneapolis). If you take the last criteria, it's five times hotter in Houston. If you combine temperature and humidity to arrive at a sweat factor index, Houston is the most uncomfortable major city in the United States while Minneapolis is among the 14 most comfortable. (The average relative humidity is 77 percent in Houston, versus 69 percent in Minneapolis). In short, Houston is Sweat City.

The Appeal of Houston

So what's so appealing about Houston? Why do 2000 new citizens arrive here each week? Why do Houstonians tell you this will be the biggest and most important city in the United States by the year 2000? Well, I'll tell you one thing: it's not the heat, and it's not the humidity either. Here are two blurbs I read, the first from *Fodor's Southwest 1982* and the second from *Houston Leisure Guide*:

"If someone tells you, in deadpan seriousness, that some day Houston will be the biggest city in the world, raise no eyebrows; change the subject, if you like, but try not to question or doubt . . . the marvel of it is they may be right. Two thousand new people each week is a strong arguing point."²

"Before you can count to 2,000, Houston will have become one of the nation's four largest cities . . . Today Houston experiences a 25% growth rate; the population doubles every ten years . . . It's a city with a rocketing head start on the 21st century. Ever restless, almost racing with time, Houston awes the newcomer with its boundless energy . . . Houston gives credence to the Texas myth. It's big and

brawny, fashioned by roughneck men with big ideas, men whose foresight was overshadowed only by their bank accounts."³

Now the cynic might attribute this astonishing growth to a rich mix of big oil money, low taxes, and loose zoning. Or to Tall-Talking Texans with a high, wide, and handsome life style. Or to the romantic lure of the last frontier so evident in the *Dallas* television series.

From Deep in the Heart of Taxes to Deep in the Heart of Texas

Certainly taxes are low. Flying from Minneapolis to Houston is going from Deep in the Heart of Taxes to Deep in the Heart of Texas. In Minneapolis, state income and state sales taxes take \$3671, a 12.8 percent bite, out of the average household income of \$28,634, while in Houston comparable figures are \$235, 0.7 percent, and \$32,565. If you want to know the reason why some go to Texas for low taxes, read this chart of the ten most heavily taxed and least taxed cities in America and weep.

The Bite State Taxes Take from Household Incomes

Biggest Bites		Smallest Bites	
1. Minneapolis-St. Paul	12.8%	1. Manchester-Nashua, NH	0.0%
2. Rochester, MN	12.4	2. Reno, NV	0.6
3. Duluth-Superior	11.8	3. Las Vegas, NV	0.6
4. St. Cloud, MN	11.1	4. Midland, TX	0.7
5. New York, NY	10.3	5. Houston, TX	0.7
6. Milwaukee, Wisc	9.8	6. West Palm Beach, Fla	0.7
7. Kenosha, Wisc	9.8	7. Odessa, TX	0.7
8. Appleton-Oshkosh, Wisc	9.7	8. Dallas, Forth Worth, TX	0.7
9. Madison-Racine	9.7	9. Tyler, TX	0.7

Tax Trade-Offs

There are, of course, tax tradeoffs. In the *Places Rated Almanac: Your Guide To Finding The Best Places To Live in America*, a study of 277 Metropolitan areas, Minneapolis-St. Paul ranks as the 23rd best place to live and Houston ranks 37th.¹ These rankings are based on the following nine criteria:

	Minneapolis-St. Paul Rank	Houston Rank
1. Climate and terrain	276	209
2. Housing	213	191
3. Health Care and Environment	8	13
4. Crime	97	231
5. Transportation	47	83
6. Education	25	106
7. Recreation	20	61
8. The Arts	10	20
9. Economics	164	9

If you don't find these tradeoffs persuasive, you can always argue that: (1) Minnesota's quality of life offsets any tax disadvantages; (2) Minnesota has a lofty social conscience and more compassion for the old, the poor, the elderly, the injured, and the unemployed; and (3) these qualities are all directly proportional to our level of taxes. This argument assumes, of course, that Minnesota government is honest, lean, and efficient.

Attitude Towards Business

These lines of reasoning appeal to many politicians and voters, but somehow carry less weight with businessmen, stockholders, and Texans. A poll of Minnesota businessmen two years ago revealed 91 percent felt the members of the Minnesota legislature as a whole were 'hostile' to business. Meanwhile in Texas, the state government is erecting huge highway billboards proclaiming: "Texas's answer to business: Yes." Partly as a result of Minnesota's attitude towards business, Minnesota ranks 4th from the top in corporate income tax collections and 3rd from the top in worker's compensation payments. Texas has no corporate income tax and minimal worker's compensation payments. In response to these attitudes and to high taxes, the Munsingwears, the Tonka Toys, and the Kallestad

Laboratories are voting with their feet and with moving vans headed to Texas. Small wonder, then that two of every three jobs created in the last ten years have been in the Sunbelt; that for the first time more Americans live in the South and West, 118 million, than in the East and North, 108 million; and that 17 house of representative seats shifted to the South and West after the 1980 census. Furthermore, our last four presidents have come from somewhere in the Sunbelt. The political and economic centers of gravity have shifted.

Taxes As Social Investment

Then, too, you can think of taxes as a social investment in the future. Taken in this light, Minnesota may well be the most socially advanced, or to use the liberals' code expression, "most progressive," state in the United States. As the Table below shows, Minnesota invests much more in social costs than the average state.⁴

	Minnesota per capita	U.S. per capita	Minnesota compared to rest of U.S.
Local Schools	460.40	410.28	+12%
Higher Education	168.82	149.75	+13
Librarians	10.06	7.48	+34
Welfare	254.00	201.11	+26
Health & Hospital	157.09	142.04	+11
Highways	218.87	147.07	+49
Airports	12.51	11.04	+13
Police	48.90	59.57	-18
Fire	17.09	25.25	-32
Sewage	52.76	43.67	+21
Natural Resources/Parks	84.50	53.11	+59
Interest/Debt	78.07	65.11	+20
Others	331.35	306.29	+ 8
Total	1,894.42	1,621.77	+17%

Texas Cocktail Talk

At a cocktail party last night, I was explaining to a Texan *why* our top personal income rates of 16 percent for incomes over \$36,000, our state income surcharge of seven percent, our 12 percent corporate income tax, and our 10 percent increase in state spending during the depths of a recession *are necessary*.

As his eyes widened in disbelief, I played my trump card. I said: "We live longer than anybody in any other state in this country. No matter how many companies leave Minnesota for Texas, we know it's the *quantity* of life that counts."

After he digested my cold facts on the Minnesota old, the Texan responded: "Doesn't surprise me. With your inheritance taxes, you people can't afford to die."

That's the kind of remark you'd expect from a well-oiled Texan.

Richard L. Reece MD

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Laser Surgery in Open Angle Glaucoma

JAMES M. MITCHELL, M.D.*

Fifty-nine eyes with medically uncontrolled glaucoma were treated with argon laser trabeculoplasty. The operation was effective in both phakic and aphakic eyes and the side effects from the procedure were minimal. Argon laser trabeculoplasty is a new, effective surgical procedure in the management of medically uncontrolled open angle glaucoma.

GLAUCOMA is a slowly progressive ocular disease affecting nearly 1% of the elderly population.¹ It is characterized by an elevated intraocular pressure which damages the optic nerve and produces visual field loss. If untreated, glaucoma causes blindness. Although many patients with glaucoma can be controlled with medicines, up to 60% ultimately require surgery.² This paper describes our results with a new surgical procedure, laser trabeculoplasty, for treating open angle glaucoma.

Materials and Methods

Between June, 1981 and April, 1982, 59 eyes in 49 patients underwent argon laser trabeculoplasty. The indications for surgery included progressive visual field loss and/or progressive optic nerve cupping in spite of maximum tolerated medical treatment.

All operations were performed on an outpatient basis. The patients were seated at the slit lamp of the Coherent 900 argon laser, and under topical anesthesia a three mirror gonioscope was placed on the eye in order

to visualize the anterior chamber angle under high magnification. Using laser settings of 50 micron spot size, 0.1 second duration, 700-1200 milliwatts of power, the laser burns were applied directly to the trabecular meshwork (Figure). Initially, all 360° of the anterior chamber angle was treated at one time by applying 100 laser burns (25 in each quadrant) to the trabecular meshwork. Later, the procedure was modified by treating only 180° of the trabecular meshwork with 40-45 burns, and then treating the other 180° several weeks later.

All patients not already on carbonic anhydrase inhibitors were treated with Diamox Sequels (500 mg.) prior to the laser surgery, and then twice a day for the 24 hours following the procedure. Also, they received post-operative steroid drops (Pred Forte) at hourly intervals to the operated eye the day of surgery, and then four times a day for three days following surgery. After surgery, the patients remained on their pre-operative glaucoma medicines in order to document that any pressure change was related to surgery. Intraocular pressure was checked and slit lamp examinations were performed four to five hours after

*Ophthalmology and Neuro-Ophthalmology specialist practicing in Minneapolis.

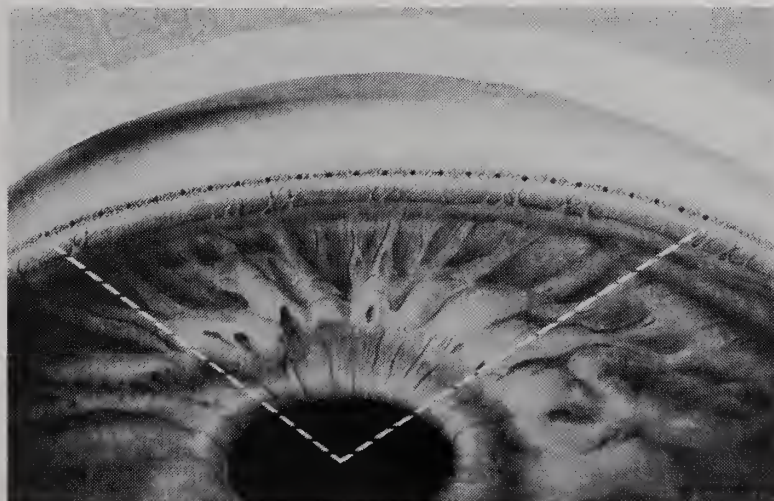


Figure — Laser burns are applied directly to the trabecular meshwork (dotted line), with approximately 25 burns in each quadrant (black dots). (Reprinted from Ophthalmology, Schwartz et al, 88:203, 1981, by permission.⁴)

surgery, the day following surgery, and four days following surgery.

Results

Results of the operations are included in the Table. The average pre-operative intraocular pressure in the 59 eyes was 24.9 mm Hg., and the average post-operative intraocular pressure was 16.3 mm Hg., with an average follow-up of four months. The average drop in the intraocular pressure following laser trabeculoplasty was 8.6 mm Hg.

Forty five eyes were phakic, and the average drop in intraocular pressure among these eyes was 8.8 mm Hg. Fourteen eyes had undergone cataract extraction at some point prior to laser surgery, and the average pressure drop among these aphakic eyes was 8.0 mm Hg. Thus, both phakic and aphakic eyes responded well to the surgery.

Complications and side effects from the surgery were minimal. A very mild iritis was commonly present for 24 hours after the operation, but in all but two eyes this cleared on topical steroids within four days. In the other two eyes, the iritis lasted two to three weeks before it ultimately cleared, without any adverse effects. Peripheral anterior synechiae were frequently seen after surgery. However, the synechiae did not appear to diminish the effectiveness of the procedure in those eyes. An immediate post-operative rise in the intraocular pressure occurred in 12% of the eyes. However, the maximum rise in pressure was only 6 mm Hg., and lasted only 24-48 hours. This problem was lessened by treating only 180° of the trabecular meshwork at a time, which decreased the incidence of post-operative intraocular pressure rise by 50%. Selected patients underwent early post-operative visual field examinations, and none demonstrated progression of field loss following laser surgery.

Nine (15%) of the eyes were still inadequately controlled following laser trabeculoplasty, and will require either repeat laser treatment, or glaucoma filtering surgery. However, only one of these eyes developed a higher pressure following surgery. Thus, glaucoma was brought under control in 85% of the eyes by laser trabeculoplasty.

Discussion

In 1979, Wise and Witter reported the successful treatment of open angle glaucoma with argon laser trabeculoplasty.³ A number of other investigators have subsequently confirmed the efficacy of laser surgery in open angle glaucoma,^{4,5} and have also demonstrated its effectiveness in aphakic and other forms of glaucoma with open angles.⁶ Because of its technical ease and relative safety, laser trabeculoplasty has rapidly acquired a significant role in the treatment of medically uncontrolled open angle glaucoma.

Laser trabeculoplasty is the appropriate initial surgical treatment even when pre-operative pressures are in the 30-40 range. In most series, the intraocular pressure drop following laser surgery is in the 7-10 mm Hg. range.³⁻⁷ However, patients with higher pre-operative pressures tend to have greater post-operative pressure drops. Among our 13 patients with pre-operative pressures greater than 30 mm Hg., the average decrease in pressure following surgery was 18.6 mm Hg. Thus, laser trabeculoplasty is effective even in patients with markedly elevated intraocular pressures, and this treatment may be tried as the initial surgical procedure in these patients.

Since it is such a new procedure, the long term effects of laser trabeculoplasty are not known. However, in patients followed three to four years, there was no significant late rise in the pressure after control was achieved with surgery.⁷

Laser trabeculoplasty's greatest advantage over standard glaucoma filtering surgery is its relative safety. Whereas filtering surgery requires at least a two day hospitalization, retrobulbar or general anesthesia, and surgical opening of the eye; laser trabeculoplasty is performed on outpatients, with topical anesthesia, and without any injections or incisions with their associated risks. Laser trabeculoplasty causes no conjunctival scarring, and therefore does not preclude filtering surgery in the same eye, should the filtering surgery become necessary. The most common significant complication of laser trabeculoplasty is the short-lived elevation of intraocular pressure that can occur following the operation, but this can be prevented in most cases by treating only 180° of the

TABLE
Intraocular Pressure Change Following Laser Surgery

Category	No. of Eyes	Average Prelaser IOP	Average Postlaser IOP	Average Change in IOP (mm Hg)
All eyes	59	24.9	16.3	-8.6
Phakic eyes	45	25.4	16.6	-8.8
Aphakic eyes	14	23.5	15.5	-8.0

trabecular meshwork, and treating the eye with intensive steroids in the immediate post-operative period. Because of its safety and effectiveness, we feel

that laser trabeculoplasty is now the initial surgical procedure of choice in the treatment of medically uncontrolled open angle glaucoma.

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Continuing Medical Information Minnesota Psychiatric Society

The Minnesota Psychiatric Society is sponsoring their annual winter meeting in Vail. Psychiatrists, other physicians, and other mental health professionals are invited.

Topic: Psychiatry in 1983: Review and Update

Dates: February 20 to 25 (arrive February 20, depart February 26)

Time: 7:00-9:00 a.m., 4:00-6:00 p.m.

Registration fees: \$100 (covers welcome wine and cheese, continental breakfast, and afternoon refreshment)

Send to: Joseph Westermeyer, M.D.

Department of Psychiatry

University of Minnesota Hospitals

Minneapolis, Minnesota 55455

Continuing Medical Education Scientific/Ski Meeting

The Northwestern Medical Association convenes for its 36th Annual Meeting at Sun Valley, ID, from February 7 to 11, 1983. Transplants-implants, general medical subjects, ski-injury prevention, high-altitude physiology and financial planning will be discussed by experts. Approved for 10 CME Category I credits. Registration 3 to 5 p.m. on February 7, Challenger Inn, Sun Valley. Non-members registration \$100. For information, write to Norman Christensen, M.D., 2456 Buhne Street, Eureka, CA 95501 or phone (707) 443-2248.

Continuing Medical Education University of Minnesota

Annual Ophthalmology Specialty Course, "Current Management of Vitreo-Retinal Disease" April 25-26, 1983, Holiday Inn Downtown, Minneapolis, Minnesota

Guest faculty will include Doctors William E. Benson, Philadelphia, PA; Robert J. Brockhurst, Boston, MA; Helmut Buettner, Rochester, MN; Devron H. Char, San Francisco, CA; Gerald A. Fishman, Chicago, IL; Jack J. Kanski, UK; David H. Orth, Chicago, IL; and Dennis M. Robertson, Rochester, MN. For Further Information please contact: The Office of Continuing Medical Education, University of Minnesota Medical School, Box 293 Mayo Memorial Building, 420 Delaware Street S.E., Minneapolis, MN 55455. Telephone 612/373-8012

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Rheumatology Corner

Lupus Nephritis

AILEEN M. DILLON, M.D.* and HARVINDER S. LUTHRA, M.D.*

Systemic lupus erythematosus (SLE) is an acute and chronic inflammatory disease of unknown etiology, whose major immunopathologic features are autoimmunity and immune complex deposition. In studies in the United States the prevalence is approximately 1:500 females and 1:5,000 males.

Clinically manifest renal disease develops in about 40% within the first year of disease and in as many as 70% of patients during their illness. However, special studies of renal biopsies show changes in virtually 100% of patients despite normal laboratory tests. Renal failure is one of the major causes of mortality in SLE along with CNS involvement and infection.

Pathological classification of lupus nephritis is based on light microscopy (LM), immunofluorescence (IF), and electron microscopy (EM) findings. For practical purposes, these pathological grades generally, but not always, correlate with different degrees of clinical, serological and renal function abnormalities and thus, a physical examination, urinalysis and a few other selected tests, if necessary, will usually alert the physician to the presence of renal disease. Approaching this discussion from the setting of the doctor's office, we can then divide the patients into three groups based on their urinalyses.

The first group has a normal urinalysis or minor abnormalities such as proteinuria less than 1.0 g/24 hours. Urine sediment may reveal 5-15 red and/or white blood cells per high power field. The renal biopsy is usually normal by LM but often IF and EM reveal immune deposits confined to the mesangium, sometimes associated with mesangial hypercellularity or increased matrix. This almost universal finding, termed mesangial lupus nephritis, leads some to consider this a histological hallmark and not a form of lupus nephritis. Typically, these patients are asymptomatic and have normal creatinine clearance studies. Progression to more serious renal involvement is rare.

The second group shows a spectrum of involvement both clinically and histologically. At the milder end are patients whose urinalysis shows proteinuria in the range of 0.5-2 g/24 hours with erythrocytes and red blood cell casts. Creatinine clearance may be normal or

mildly impaired e.g. 60-80 ml/minute. Hypertension and the nephrotic syndrome (proteinuria greater than 3.5 g/24 hours) are rare. Overall the prognosis is good with infrequent progression to renal failure. However, at the other end of the spectrum are those who present with or develop significant proteinuria, usually associated with the nephrotic syndrome and on urinalysis show free erythrocytes and red and white blood cell casts. Greater than 50% have reduced creatinine clearance and elevated serum creatinine. Clinically, hypertension and the sequelae of the nephrotic syndrome — edema and congestive cardiac failure, are common. Untreated, these patients usually progress to renal failure within two years, with a high mortality rate. Even with treatment, only about 25% achieve a remission and the remainder have persistent nephrotic syndrome or progress to uremia with its attendant complications.

Histologically this second group is characterized by capillary endothelial cell proliferation, necrosis and polymorphonuclear leukocyte infiltration, in addition to the mesangial changes described above. IF and EM studies demonstrate immune deposits in the mesangium and subendothelium. The difference between the two ends of the spectrum is a quantitative one; at the milder end — focal proliferative lupus nephritis (FPLN) — these changes involve less than 50% of all glomeruli and in a segmental fashion (Figure 1), while at the opposite end is a diffuse proliferative lupus

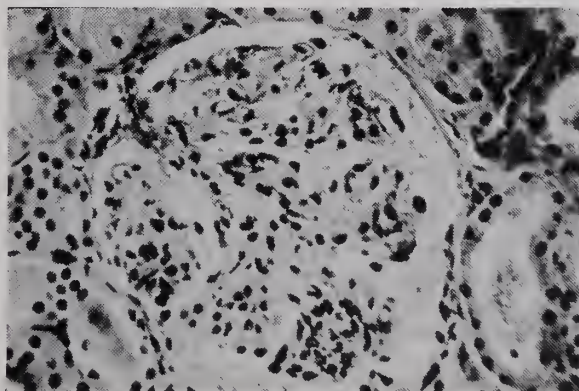


Fig. 1 — Focal proliferative glomerulonephritis (FPGN) in SLE with focal hypercellularity and cell necrosis (arrow). Remainder of glomerulus is normal. ARA slide collection. (From the Revised Clinical Slide Collection, copyright 1981. Used by permission of the Arthritis Foundation.)

*Mayo Clinic, Rochester, Minnesota.

nephritis (DPLN) involving the entire glomerulus and almost all glomeruli (Figure 2).

The final group is characterized by the development of often massive proteinuria, associated with the nephrotic syndrome in approximately 80%. Hematuria occurs in 40% but casts are usually absent. Hypertension and mild renal insufficiency may develop in 30%. Renal vein thrombosis may be associated with this lesion — membranous lupus nephritis. Histologically, there is diffuse thickening of the glomerular capillary walls with subepithelial deposits of immune complexes by IF and EM (Figure 3).

Renal Biopsy

In general, any patient with active nephritis (proteinuria, microscopic hematuria, azotemia) should have a percutaneous renal biopsy, provided they have 2 normal or large sized kidneys and in the absence of significant hypertension, coagulopathy or other disease manifestation which would necessitate aggressive therapy regardless of the biopsy findings.

In the individual patient a biopsy aids in determining treatment options and as a guide to prognosis. In the group as a whole, analysis of multiple biopsies has allowed the formulation of the above classification, in addition, to recognition of less common patterns such as tubulo-interstitial nephritis, mixed histological patterns and transformation of one pattern to another on repeated biopsies.

Biopsies allow differentiation of histologically "active" from "inactive" lesions. This is clinically important as active lesions, though usually more responsive to therapy are considered by most to indicate a poor prognosis. On the other hand inactive lesions are less likely to respond to therapy and in these cases treatment should be symptomatic — control of hypertension and diet.

Serological Parameters

Low serum complement, high anti-n-DNA antibody and immune complex levels usually are indicative of more active and severe lesions. However, similar alterations may occur in other forms of lupus involvement and cannot be relied upon to predict the pattern of renal involvement nor the response to treatment.

Prognosis and Treatment

The prognosis of renal disease in SLE has improved significantly in recent years, probably due to earlier diagnosis and improved management. The 5 year survival for mesangial and membranous nephritis is

References will be found on page 756.

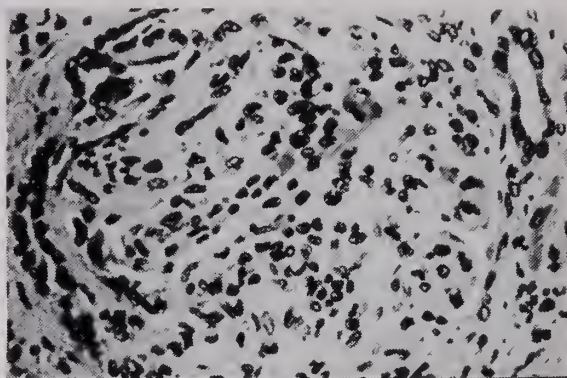


Fig. 2 — Diffuse proliferative glomerulonephritis (DPGN) in SLE showing hypercellularity and loss of capillary lumina throughout the entire glomerulus. ARA slide collection. (From the Revised Clinical Slide Collection, copyright 1981. Used by permission of the Arthritis Foundation.)

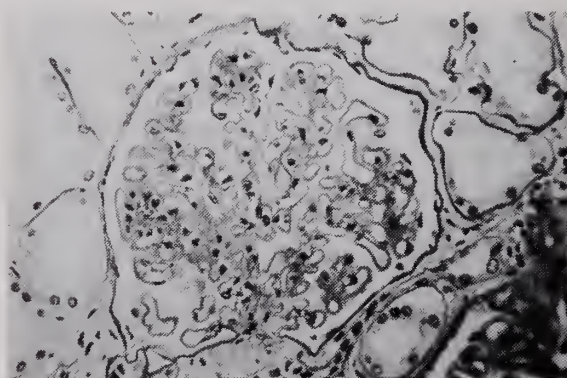


Fig. 3 — Membranous glomerulonephritis of SLE showing diffuse thickening of the glomerular capillary basement membranes resulting in a "wire loop" lesion. ARA slide collection. (From the Revised Clinical Slide Collection, copyright 1981. Used by permission of the Arthritis Foundation.)

85-90% while that for focal and diffuse proliferative nephritis is 60%.

The treatment of lupus nephritis is controversial. In general, the mesangial form does not require treatment, FPLN responds to small-to-moderate doses of corticosteroids while membranous and DPLN require larger doses. Because of the poor outlook in untreated DPLN, there have been several trials utilizing immunosuppressives, plasmapheresis, anticoagulants and pulse doses of corticosteroids, but, none have been shown to improve the outcome in the overall group although individual patients may have a good response. It is, however, equally important to treat hypertension, control diet and institute dialysis when renal failure develops. Renal transplants have been successful in these patients and should be considered.

Acknowledgments

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Oral Retinoids in Dermatology

G.T. BAYRD, M.D.* and R.W. GOLTZ, M.D.*

Accutane, the first oral retinoid to be approved by the FDA, was released in September, 1982. This the first of a new class of drugs which will profoundly change the practice of dermatology.

RETINOIDS ARE analogues of Retinol, Vitamin A. For the last several years, there has been growing interest in the use of this entire class of drugs in the treatment of a variety of dermatoses. The first to be approved by the FDA for prescription sale will be available this fall. This compound, 13-cis-retinoic acid, will be sold under the tradename, Accutane. It seems to be particularly useful in the management of severe nodulocystic acne. It may eventually prove to have wider clinical applications, however, and further studies are in progress. For this reason, we wish to review the present status of this important and interesting new group of therapeutic agents.

History

In 1979, Gary Peck and his group at the National

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Institute of Health, published an article describing successful treatment of 14 patients with resistant cystic and conglobate acne with 13-cis-retinoic acid. Benefits were striking.¹

Use of vitamin A in dermatology began long ago. Vitamin A is necessary for normal keratinization, vision and reproduction, but therapeutic use has been limited because of a narrow risk/benefit ratio.² Vitamin A taken orally in amounts sufficient to cause clinical improvement in lamellar ichthyosis, acne, or erythrodermic psoriasis may result in central nervous system toxicity, with increased cerebrospinal fluid pressure, headaches, somnolence, nausea, vomiting and dizziness.³ These can be seen after doses as low as 40,000 IU per day. It is because of this toxicity that synthetic analogues of vitamin A (retinoids) have been investigated.

TABLE 1
Comparison of Systemic Side Effects of Retinoids Taken Orally³

Side Effects	Natural		Synthetic	
	Retinol (Vitamin A)	All trans retinoic acid (Tretinoin) (Retin -A)	Aromatic Retinoid (Etretinate, R0 10-9359)	13-Cis Retinoic Acid (Accutane)
CNS				
Coma		Rare	0	0
Intraocular pressure: sensitivity/papilledema	Common	Common	0	0
Headache	Common	Always	Rare	Rare
Changes in psychological state	Often	Often	0	0
Other systems				
Fatigue	Common	Common	Rare	Rare
Anorexia	Often	Often	0	Rare
Thirst	Common	Common	Rare	Often
Nausea	Often	Common	0	0
Dizziness		Often	0	0
Bone pain/arthralgias/arthritis	Often		Rare	Rare
Altered menses	Common		0	0

Topical tretinoin (all-trans-retinoic acid) (Retin-A cream or gel) has been used for several years in the treatment of acne. Side effects include skin irritation and depigmentation. There is poor penetration of the drug into the skin in the keratodermic diseases, and its use is impractical in widespread disorders of keratinization. Taken orally, all-trans-retinoic acid (tretinoin) is, like vitamin A, toxic to the central nervous system at therapeutic doses.³ Side effects of vitamin A, tretinoin, 13-cis-retinoic acid, and Retin-A are compared in Tables 1 and 2.

Two new oral synthetic retinoids that have lesser systemic but greater mucocutaneous side effects than vitamin A have been widely studied in this country and in Europe. Because it will be the only retinoid available for prescription in the foreseeable future, the following comments will be limited only to Accutane (13-cis-retinoic acid).

Pharmacology and Toxicology

13-cis-retinoic acid (Accutane) is rapidly absorbed from the gastro-intestinal tract. Peak serum levels are reached in approximately three hours. The parent compound is quickly eliminated but metabolites persist for some time. The lethal dose is in the range of 1-8 grams per kilogram, approximately 100 times the therapeutic dose.

The Ames test for mutagenicity is negative for all synthetic retinoids so far tested. In high doses, Accutane is teratogenic in rats, but there is no evidence that in therapeutic doses it is in humans. There have been no reports of abnormality in offspring of women taking this drug during pregnancy. Fetal damage remains a theoretical possibility, however, and caution must be used when prescribing any retinoid to women of childbearing potential. Since 13-cis-retinoic acid is detectable in the serum for as long as 90 days, prudence

dictates birth control measures during the entire period the patient is on the drug and for three months thereafter.⁴

In general, side effects, both in severity and incidence, are dose related and reversible upon cessation of drug use.

Patients taking retinoids, including Accutane, frequently demonstrate some degree of elevation of serum triglyceride levels. This may prove to be a major problem in patients with pre-existing familial hyperlipidemias, alcoholism, gross obesity, or diabetes, but generally has not been one in those patients with normal baseline triglyceride levels and without additional risk factors.

Clinically, toxicity of Accutane is primarily confined to the skin. Patients occasionally complain of thirst, rarely of fatigue, bone pain, headaches, and other systemic symptoms. All patients develop some degree of cheilitis; this is usually relieved by application of emollients. Other common complaints are dry skin, conjunctivitis, skin fragility and epistaxis. Some patients have mild hair loss or altered hair texture. Most of these side effects can be lessened by manipulation of the dose or by use of topical medications.⁵

Mechanisms of Action

There appear to be at least four ways in which Accutane improves the lesions of acne, rosacea, hidradenitis, dissecting folliculitis and gram negative folliculitis.

1. The drug reduces the bacterial flora of the skin, particularly the gram positive *Propionibacterium* acnes. There is also a dramatic decrease in numbers of gram negative bacilli. Bacterial counts return to normal levels when the drug is discontinued.

2. The drug seems to have a general anti-

TABLE 2

Comparison of Mucocutaneous Side Effects of Retinoids Taken Orally

Side Effects	Natural		Synthetic	
	Retinol (Vitamin A)	All trans retinoic acid (Tretinoin)	Etretinate	Retinoic (Accutane)
Dry Skin/				
desquamation	Always	Common	Common	Often
Cheilitis	Often	Always	Always	Always
Conjunctivitis			Often	Common
Skin Fragility			Often	Common
Pruritus	Always	Common	Often	Rare
Epistaxis	Common	Often	Rare	Common
Mucosal				
erosions	Often	0	Often	0
Edema	Common (legs)	Often (face)	Rare (legs)	0
Alopecia	Common	Often	Often	Rare
Altered hair texture	Common		Often	Rare
Brittle Nails	Common			
Paronychia	Rare		Rare	Rare

inflammatory action. The number of inflammatory acne lesions decreases rapidly when the drug is given.

3. Probably the most direct effect on acne results from a pronounced attenuation of facial sebaceous glands. Serial biopsies, while patients are on therapy, show gradual involution and eventual disappearance of sebocytes. Clinically, there is diminution of skin oiliness and reduction in numbers and size of comedones.

4. Accutane seems also to affect follicular keratinization. Pores decrease in size and comedones are dramatically loosened after four to five weeks of therapy.⁶

Treatment and Dosage

Most acne patients require a four-month course of treatment with Accutane, with improvement continuing for at least two months after drug is stopped. Most

patients, particularly those whose acne is primarily facial, experience long remissions — up to 50 months or more. Patients with severe acne of the chest and back require higher doses and respond more slowly. The cutaneous side effects are well tolerated by these highly motivated patients. None of our patients has elected to discontinue Accutane or even to reduce the dose, whatever the cutaneous side effects.⁷

Because of reports of elevated serum triglycerides in patients on oral Accutane,⁸ fasting triglyceride and cholesterol levels should be determined at the beginning of treatment and again at one month into the four-month course of therapy. This should serve to identify those patients with pre-existing hyperlipidemia, so that they may be monitored closely. It will also identify those patients whose serum triglyceride rise is unusually high.

Patients whose acne is primarily facial should be



Fig. 1 — Chest before therapy.

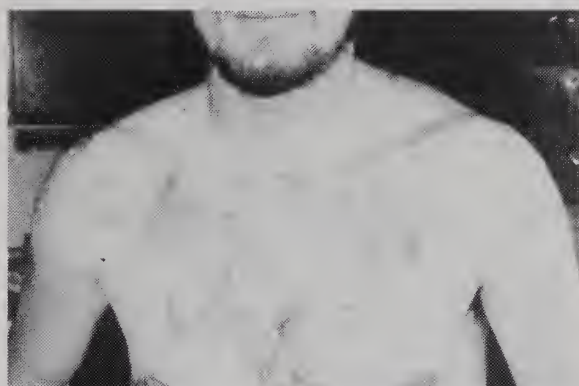


Fig. 3 — Chest after therapy.



Fig. 2 — Back before therapy.

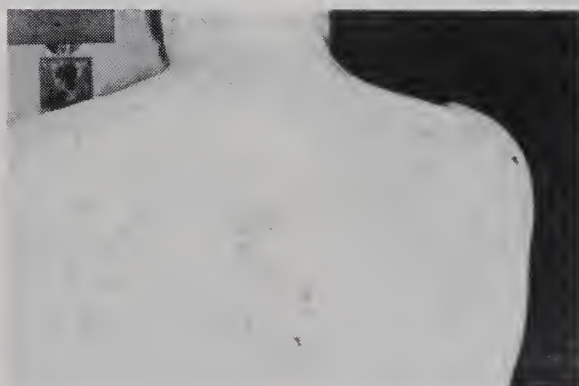


Fig. 4 — Back after therapy.

A 25-year-old man with disabling necrotic cystic acne of the back, chest and face. After four months' treatment with Accutane, 2 mg/kg per day for the first month, and 1 mg/kg for the next three months, there remained only scarring.

started on approximately one milligram/kilogram per day for the first month, reducing to 0.5 milligrams/kilogram per day for the last three months of therapy. Those with severe acne of the chest and back should be started on 2 milligrams/kilogram per day for four weeks, with the dose reduced to 1 milligram/kilogram per day for the remaining three months. Patients may respond to lower doses of Accutane, but the remissions don't seem to last as long. Some patients experience a flare of their acne during the first one or two weeks of therapy, but this gradually improves as treatment is continued. This initial flare may be avoided by starting with the higher doses.⁹

Other Potential Applications

Oral retinoids have been used in the management of a number of rare but disabling dermatologic diseases such as Darier's disease (keratosis follicularis), pityriasis rubra pilaris, lamellar ichthyosis, epidermolytic hyperkeratosis, palmo-plantar hyperkeratosis and severe mucous membrane lichen planus. They have also been used to treat severe cases of common diseases such as psoriasis. We have been using an

aromatic retinoid, etretinate, (RO-9359, Tigason in Europe) in the treatment of severe psoriasis for the past two years. This drug shows great promise but its teratogenicity is greater than that of Accutane and this may delay final FDA approval.

Some patients with psoriatic arthritis improve while on treatment with the aromatic retinoid. Studies are underway to assess its value in treating other joint disorders.¹⁰

Retinoids have also been used for tumor prevention. Clinical trials are under way to evaluate their efficacy, either as primary or adjunctive therapy for epithelial tumors.

Summary

13-cis-retinoic acid (Accutane) is the first of a new class of drugs which may affect the practice of Dermatology as dramatically as did the introduction of corticosteroids decades ago. Retinoids are potent drugs and need to be used with care. Not every acne patient is a candidate for Accutane therapy, but deserving patients should not be denied this new and effective treatment because of unreasonable fear of side effects.

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Anuria from Ureteral Carcinoma in a Congenital Solitary Kidney

14 Year Follow-Up of a Case

GAYLORD KAVLIE, M.D.* and WAYNE M. SWENSON, M.D., F.A.C.S.†

A case of anuria from ureteral carcinoma in a congenital solitary kidney is presented. Excretory urograms (IVP) were reported by three different institutions as "bilateral hydronephrosis." These reports led to confusion and delayed the eventual surprising diagnosis of transitional cell carcinoma in the ureter of a congenital solitary kidney. The demonstrated roentgenographic phenomenon of "phantom kidney" is discussed and is stressed to minimize this pitfall in dealing with such an unusual clinical situation.

URETERAL CARCINOMA in a congenital solitary kidney is a rare combination and would not ordinarily be suspected in a patient presenting with anuria. Only one case report of the unlikely combination of these two entities could be found in the medical literature.¹ Our patient survived 14 years, free of disease, after diagnosis and limited resection of a low grade transitional cell carcinoma of the ureter in a congenital solitary kidney. The reasons for the difficulty in diagnosis are discussed. Important features in the course of the case are presented to illustrate pitfalls that were accidentally circumvented to result in the successful outcome.

Case Report

A 53-year-old man presented to the local hospital on July 22, 1968, complaining of inability to void, increasing weakness, disorientation, nausea and vomiting, and lower abdominal pain. He had episodes of occasional dysuria for a number of weeks and had not felt well for the previous year. He had had no episodes of hematuria, flank pain or groin pain, but he had been bothered by occasional mild lower abdominal discomfort. His past medical history was noncontributory and his physical examination at the time of admission was normal. An initial urinary catheter specimen obtained only minute quantities of blood-tinged liquid. Laboratory studies showed blood urea nitrogen 30 mg percent, complete blood cell count normal, and white blood cell count 12,450 cu mm. The urinalysis showed

a trace of albumin, occult blood and numerous red blood cells; the amount was insufficient to show a specific gravity. The urinalysis on the next day; however, showed neutral pH, 2+ albumin, 2+ to 3+ white blood cells per high-power field. The initial intravenous pyelogram (IVP) was interpreted as typical of bilateral congenital polycystic kidneys with greater cystic formation on the left than on the right. A diagnosis of uremia secondary to polycystic kidneys was made and the patient was referred to a urologist.

He was admitted to the hospital for a second time. A trace urinalysis, again almost nonexistent in amount, showed trace bacteria. The blood urea nitrogen had



Fig. 1 — The excretory urogram (IVP) read as bilateral hydronephrosis and hydroureters.

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risen to 88 mg percent, serum creatinine 9.8 mg percent, phosphorous 4 mg percent, and serum uric acid 7.5 mg percent. Serum electrolytes, complete red blood cell count, and differential count were all within normal limits. The urine was cultured and grew coagulase negative staphylococcus. An infusion pyelogram at this time was again described as bilateral hydronephrosis and hydroureters with a large prostatic impression in the bladder (Figure 1). There was minimal residual urine in the bladder. The blood urea nitrogen over the next hospital days remained elevated and urinalysis again showed a trace of protein and a specific gravity of 1.005 to 1.009. The urinalysis demonstrated a trace albumin, 2+ to 3+ white blood cells, and 1+ to 4+ red blood cells per high-power field.

The patient left the hospital against medical advice after six days with a diagnosis of bilateral hydronephrosis, hydroureters and prostatic hypertrophy. The urologist had placed a Foley catheter in the urinary bladder and the patient was instructed to return in three weeks for a prostatectomy.

Ten days later he was admitted to another hospital close to his home as an emergency patient in critical condition. A small amount of gross hematuria was obtained. The laboratory results showed blood urea nitrogen 51 mg percent, serum creatinine 6.8 mg percent, and 2+ albumin with trace urine out. An infusion pyelogram at this hospital was again read as suggesting bilateral hydronephrosis. The right ureter and pelvis were better visualized than the left. He remained anuric over the next 48 hours and his condition deteriorated. The blood urea nitrogen level increased and the urine output, which had been scanty, ceased.

An emergency nephrostomy was performed on the right because the right collecting system had been described by the radiologists as better visualized than the left. An enlarged right renal pelvis was found at operation. A purse-string suture was placed and a large nephrostomy tube was inserted into the right renal pelvis. The tube was brought out through a counter incision on his right flank. Urine output improved dramatically through the nephrostomy tube with an immediate output of huge quantities of urine. The blood urea nitrogen decreased to a level of 33.8 mg percent. The patient's general condition improved dramatically. The urine output was excellent through the nephrostomy tube, although there was no urinary bladder output. A postoperative nephrocystogram through the nephrostomy tube showed an obstruction of the right ureter at the level of the bony pelvis. This was interpreted by the radiologists as possible

retroperitoneal fibrosis or radiopaque calculus. Because there was no urinary bladder output as normally expected, a translumbar arteriogram was performed to determine if there was a left kidney. The left renal artery narrowed abruptly from its takeoff in the aorta and no left kidney was visualized. With the dilemma of a non-functioning left kidney and an obstruction of the right ureter, it was decided to wait for one month before exploring the obstructed ureter. The patient was discharged from the hospital on the 15th postoperative day.

The patient was readmitted to the hospital for correction of the obstructed ureter one month later. On this admission the urinalysis was normal, blood urea nitrogen was 21.6 mg percent. The nephrostogram continued to show a complete obstruction of the right ureter at the level of the bony pelvic brim. The ureter was explored via a midline abdominal incision. After entering the retroperitoneal space a 10 cm fusiform swelling was identified in the right ureter at the bony pelvic brim. The left kidney could not be found despite meticulous exploration of the abdomen by two surgeons. A 5 cm ureteral tumor was resected with 5 cm margins above and below it. The distal end of this foreshortened right ureter was reimplanted into the dome of the urinary bladder. The pathologic diagnosis of the ureteral tumor was a low grade transitional cell



Fig. 2 — An IVP 12 years following resection showing reimplantation site in the dome of the bladder, absence of the left kidney and ureter, and no evidence of tumor recurrence.

carcinoma. The postoperative recovery was uneventful and the patient was discharged from the hospital on the 7th postoperative day.

The patient has been followed for 14 years with periodic examinations including urine cytology, urinalysis, blood urea nitrogen, creatinine clearance, excretory urograms, cystoscopy, and retrograde studies. The blood urea nitrogen levels remain in the range of 30 mg percent with a creatinine level of 2 to 3.2 mg percent. Repeated cytology studies have been normal. X-ray studies and cystoscopy with retrograde pyelography have not demonstrated a recurrence (Figure 2). The urinalysis shows a 1+ to 2+ persistent albumin but there have been no red blood cells in the urine since the operation. No chemotherapy has been used. It is interesting to note that the IVP still shows a phantom kidney from the intestinal dye excretion. This has been confirmed by upper GI series and follow-through X-ray studies.

Discussion

Congenital agenesis of one kidney has been reported in an autopsy study to occur in 1 of 1300 persons.²

Primary ureteral carcinoma is reported to be present in 1 of 11,000 autopsies. The concurrence of these two rare entities, a congenital solitary kidney with a primary ureteral tumor, has been reported only once.¹ Anuria from such an occurrence is unsuspected.

The typical reported triad of gross hematuria, renal colic and a palpable mass often described in cases such as these was not found in our patient.^{3,4} The confusing IVP findings reported by three separate institutions and three different radiologists can be explained by transmucosal intestinal excretion of contrast media as reported by others.^{5,6} Mention was made in one paper of intestinal dye excretion being mistaken for a dilated ureter, but there is no known report in the literature in which the intestinal excretion of dye imitated a calyceal system to create a phantom kidney such as occurred in this case.

This case is presented as a possible consideration in the differential diagnosis of anuria. Infusion pyelography demonstrating an existing phantom kidney caused by intestinal excretion of IVP dye has been demonstrated.

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Robert J. Hohman

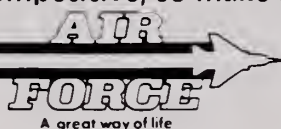
Robert J. Hohman, Executive Vice President Emeritus of the American Heart Association, Minnesota Affiliate, Inc., was given the Albert Justus Chesley award granted for distinguished service in the field of public health. Mr. Hohman is a Minneapolis resident and recently retired as the chief executive officer of the Minnesota Heart Association after 25 years of service.

The Chesley award was named after Minnesota's long-time health officer, Dr. Albert J. Chesley, who served 54 years with the Minnesota Department of Health. Dr. Chesley was one of the national leaders in public health and spent 34 years with the Department of Health as Secretary to the Minnesota State Board of Health and as Executive Officer of the Department. The Chesley award is presented yearly to the individual who has made an outstanding contribution to the health of the people of Minnesota and whose membership in the Minnesota Public Health Association has been significant in advancing the association's aims.

Mr. Hohman was president of the Minnesota Public Health Association in 1965, served as president of the Minnesota Rehabilitation Association and of the Society of Heart Association Professional Staff which represents over 800 heart staff members throughout the country.

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Hereditary Pancreatitis

Evaluation of a Possible Kindred and a Review of Recent Literature

KRISTEN NAYLOR, B.S. and REED T. KELLER, M.D.*

A proband and family tree of a family of suspected hereditary pancreatitis is presented. The literature regarding familial pancreatitis is reviewed with emphasis on pathophysiology, treatment, and course.

IN 1952, COMFORT and Steinberg reported five families with multiple instances of chronic pancreatitis in several generations and hypothesized a hereditary factor.⁷ Later confirmatory studies estimate the occurrence of the trait at 13% of patients with chronic pancreatitis.¹⁶

Genetics

McKusick lists hereditary pancreatitis (16780) as an autosomal dominant trait showing simple Mendelian inheritance.^{7,26} The trait has poor penetrance. The probability factor for affected offspring from one affected parent is 40%.³⁶ Since this penetrance approximately 80% of females with hereditary pancreatitis have an increased incidence of spontaneous abortion. This reflects a non-viability of affected embryos and may slightly lower the probability figures for live born affected children.¹¹ The reported kindreds are primarily Caucasians of German and Scandinavian origins; only one family has been reported from India.

The first five family studies had increased urinary cystine and lysine excretion in both affected and unaffected members.¹⁶ It was thus concluded that hereditary pancreatitis and aminoaciduria are closely related. However, no relationship between elevated lysine or cystine levels and pancreatic function has been established.¹⁰ Expanded studies suggest that less than 20% demonstrate aminoaciduria. It is most likely this phenomenon represents either coincidence or two distantly linked traits with a low cross-over rate. The clinical presentation appears to demonstrate a high degree of phenotypic variation and expressivity. In light of this, additive polygeny cannot be dismissed as a possibility.¹³

There are several loci which have been tested for linkage with hereditary pancreatitis; MNSs, Rhesus, Kidd, acid phosphatase, phosphoglucomutase 1, and haptoglobin, all with negative results.³⁶

*Chairman, Department of Medicine University of North Dakota, Grand Forks, North Dakota.

See editorial, page 761.

Clinical Presentation

Hereditary pancreatitis has no outstanding clinically identifying features. There are, however, some general trends that have been observed. The most consistent feature is the age of onset. Hereditary pancreatitis is a disease of children and young adults (15-25 years). Other forms are found more frequently in the middle-aged.

The alcohol induced pancreatitis tends to favor males 6:1 but the hereditary form is equally distributed between males and females.²⁵ Diabetes is not as common but there is an increased incidence of pancreatic carcinoma. The increase is estimated at 21% and is somewhat more prevalent in persons with blood group A.^{24,33}

It is interesting to note that there are several families which demonstrate isolated incidences of peculiar symptoms. Each of these may represent a phenotypic variation of hereditary pancreatitis or separate genetic traits entirely. The "painless" variety (number 6) is the only one found in several kindreds.

1. Distinct ductal anomalies⁴
2. Hypertrophy of the smooth muscle of the sphincter of oddi²⁵
3. Unexplained episodes of mild to severe G.I. bleeding which resolved spontaneously^{20,35}
4. Associated portal vein thrombosis²⁵
5. Cessation of pain at 30 to 40 years of age^{20,35}
6. "Painless" pancreatitis in which calcification and deterioration of pancreatic tissue occur without episodes of pain

Pathophysiology

There have been only two families in which substantial evidence of ductal malformation was present. In both instances all affected members underwent surgical procedures designed to improve pancreatic drainage; sphincteroplasty, sphincterotomy, and the

Peustow procedure, 90% of these operations were quite successful.¹⁵ The bulk of patients with hereditary pancreatitis achieve no symptomatic relief from the same treatment.

It is possible for reflux of duodenal contents into the pancreas, or retention of enzymes distal to a constriction of the duct to cause pancreatic inflammation. Indeed, changes of this nature have been produced experimentally in dogs.⁵ Primarily these phenomena are associated with focal, ductal deterioration and do not explain the mechanisms responsible for the diffuse parenchymal tissue destruction found in hereditary pancreatitis.

Ductal abnormalities cannot be arbitrarily dismissed as contributory factors, and patients can be evaluated by endoscopic retrograde cholangiopancreatography (ERCP). If substantial evidence of ductal stricture or malformation can be obtained in this manner, surgical intervention to improve drainage is a legitimate consideration. In those patients who present no direct evidence, such attempts are quite fruitless in terms of symptomatic relief.

The mechanism of tissue destruction in any form of chronic pancreatitis is not well understood. What is well-known is that the enzymes secreted by the pancreas are powerful proteolytic and lipolytic agents. The proteolytic group are the most suspect of penetrating duct walls and invading the parenchyma. Undoubtedly the lipolytic enzymes play a major role in the fat necrosis which follows.

Table I is a summary of the primary proteolytic enzymes, their precursors, activators and some specialized functions.

The activation of these enzymes within the gland itself could account for diffuse destruction of pancreatic tissue. Normally, trypsin inhibitor is present within the pancreatic tissue in quantities which prevent activation before the enzymes reach the duodenum. In vitro and in vivo experimentation has

shown that proteolytic activity may take place even in the presence of trypsin inhibitor.³¹ Trypsin is not believed capable of autocatalyzing its precursor, trypsinogen. The conditions under which this may happen in human subjects are not yet clearly defined.³¹

Another interesting phenomenon has been observed in patients with pancreatitis. The volume of pancreatic juice secreted on stimulation is significantly reduced yet the total amount of protein secreted remains the same. On standing, in vitro, the protein readily precipitates. This state of protein hyperconcentration may have significance in both blockage and activation. The following mechanisms suggest several possible abnormalities of a genetic nature: (1) Trypsin inhibitor levels drop spontaneously, (2) Trypsin inhibitor not functional, (3) Circulating trypsin like substances capable of activating zymogens, and (4) An alteration of protein metabolism responsible for activation and/or precipitation.

Presentation of the Kindred Evaluated

The proband (IV-27) is a twenty-seven year old female of Scandinavian decent. She has never been a substantial user of alcohol and has little outstanding medical history beyond an appendectomy at age fifteen. She was evaluated in November of 1975 for episodes of abdominal pain and vomiting. She was admitted to the hospital with: WBC 11,500/mm³, Hgb 12.6 gm%, a normal serum amylase (130 Somygi units), and calcium 4.9 mEq/l. Other enzyme values were also normal. An upper G.I. series appeared normal but an oral cholangiogram revealed biliary tract abnormality. A cholecystectomy was performed and 31, 6-10 mm stones were retrieved from the gall bladder. No evidence of ductal stones were found. The in hospital recovery was uneventful. Within one month of discharge she underwent endoscopic examination. At this time bile reflux gastritis was observed and confirmed with biopsy. Appropriate treatment followed with resolution of the gastritis but no alleviation of pain. As an outpatient over the next six months she at various times demonstrated serum amylases greater than 2,500 units and urine amylase greater than 1,800. Her weight dropped between 60-70 pounds. An ERCP was performed but showed no conclusive evidence of ductal abnormality or obstruction. At laparotomy, the head of the pancreas was observed to be moderately edematous and a sphincteroplasty was performed to improve drainage although distinct blockage was still inevident.

Table I

Activator	Zymogens (precursors)	Enzymes	Special Functions
Trypsin (in small amounts)	Proelastase	Elastase	Attacks elastic fibers
	Chymotrypsinogen	Chymotrypsin	
	Kallikreinogen	Bradykinin	
		Kallidin	Produces vascular permeability and vasodilation
Enterokinase (in presence of calcium)	Trypsinogen (has been autocatalyzed in vitro)	Trypsin	

In the two years following she has had nine acute exacerbations compatible with pancreatitis. Urine amylase values have been consistently elevated during these episodes. The fecal fat determination is in excess of normal. Following two of the episodes a mass was detected in the upper left quadrant, suggestive of pseudocyst. They resolved spontaneously. She is currently being treated with Tagamet, antacids, and analgesics. She has regained 45 pounds.

I-1 is the brother of the proband's great grandmother. He is reported by family members as having episodes of abdominal pain beginning early in adolescence. Each episode lasted several days during which he was incapacitated. He died in 1884, at the age of 24, of uncertain but accidental circumstances. The autopsy report mentions a "diseased" and "shrunken" pancreas.

I-2 is the greatgrandmother of the proband. She has recurrent bouts of abdominal pain and vomiting, often with morbidity lasting for more than a week. She had five spontaneous abortions. She died during a particularly severe episode at about 35 years of age.

II-2 is the oldest sister of the proband's grandmother. She was an invalid since birth, under weight, unable to tolerate rich foods, and frequently complaining of diffuse abdominal pain. She died in the third trimester of pregnancy at age 17.

V-31 is a three year old niece of the proband. She is being evaluated for episodes of pain and vomiting following ingestion of fatty foods.

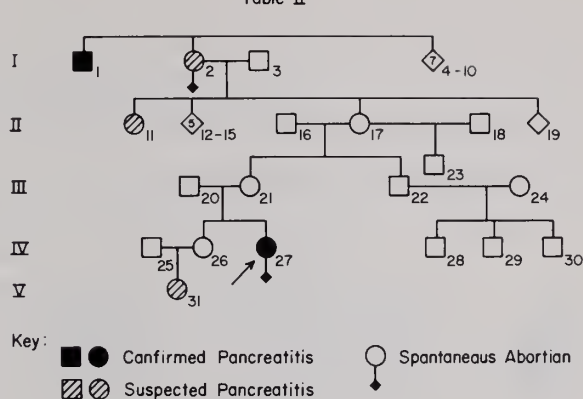
Information on the unspecified members was unobtainable. The majority of them are deceased, having resided in Sweden at the time of their death.

The conclusions that can be drawn from this type of study are not definitive. In genetic disease where the loci has not been determined and no distinctive clinical features can be measured the clinician must depend on the pedigree as a primary information source. Continued observation of the unaffected family members may produce additional information.

From this pedigree, it would be legitimate to conclude that the family pancreatitis is the hereditary form. The occurrence of two or more instances in different generations of a family is acceptable proof of an inheritance factor.¹³

The establishment of inheritance may seem a rather moot point for the patient as an individual. Clinically there is a small difference in symptoms or treatment between chronic pancreatitis of al-

Table II



coholic origin and the hereditary variety. The significance to the patient will be greatest in terms of family planning. Dominant traits carry a high probability of being inherited and the ramifications must be seriously discussed.

Summary

Hereditary pancreatitis is an autosomal dominant trait with a reduced penetrance of approximately 80%. In early studies it was erroneously believed to be linked with aminoaciduria. Despite conclusive evidence to the contrary, the clinical significance of elevated lysine excretion is still vastly over-rated by clinicians.

As a form of chronic pancreatitis, the hereditary type is not easily distinguished by symptoms. The only index that can be used in an individual case is the age of onset. Hereditary pancreatitis does tend to occur in children and young adults, with other causes being predominant in the middle aged and elderly.

The mechanisms by which the disease initiates and progresses are not well understood. It is quite possible that the genetic defect in some way activates the proteolytic enzymes within the body of the gland, producing the typical diffuse tissue destruction.

The only substantiating evidence a clinician can obtain is a history of pancreatitis in other family members. Occurrence of the disease in two or more generations can be accepted as proof of an inheritance factor.

In those instances in which the possibility of hereditary pancreatitis is strongly indicated the patient may be advised for purposes of family planning. The treatment is virtually unchanged by the establishment of the genetic factor.

See references page 744.

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Gynecologic Malignant Disease

LEON L. ADCOCK, M.D.*

Current methods of therapy for invasive gynecologic malignancy are not successful unless the disease is diagnosed in an early stage. Concepts for therapy are changing for multiple, noninvasive carcinoma of the vulva. Invasive carcinoma of the cervix is frequently not diagnosed by pap smears and the clinician must evaluate all symptoms and abnormal findings. Menopausal and postmenopausal patients who have abnormal uterine bleeding must undergo evaluation in order to diagnose adenocarcinoma of the endometrium in an early stage. The initial operation for an ovarian malignancy requires staging in order to recommend subsequent therapy.

THE MANIFESTATIONS of squamous cell carcinoma of the vulva appear to be changing. Noninvasive squamous cell carcinoma is occurring more frequently in the younger woman and the typical invasive carcinoma continues to occur primarily in the older patient.

Vulvar intraepithelial neoplasia (VIN, noninvasive squamous cell carcinoma, carcinoma in-situ, Bowen's disease) appears to be occurring more frequently, often in younger patients, and not uncommonly in those who are under the age of 30. Approximately 50% of these patients are asymptomatic. The lesions are frequently multicentric, may be pigmented and at times appear as condyloma acuminata. It is the present belief that they are of viral etiology and may be associated with other sexually transmitted diseases. Such lesions occasionally occur during pregnancy and disappear spontaneously postpartum. One of the most significant aspects is that twenty to thirty percent of patients have intraepithelial carcinomas of the vagina or cervix, and are at high risk for developing new primary carcinomas in the future.

The diagnosis of all vulvar lesions is dependent upon adequate biopsy. Should the lesion be exophytic, anesthesia is not necessary. Slightly indurated or plaque-like lesions require local anesthesia. Occasionally, when multiple lesions are present, general anesthesia is necessary. An aid to the identification of multiple carcinomas is the use of toluidine blue stain and, following decolorization with acetic acid, abnormal areas are identified, as the stain is retained in the nuclei. Colposcopy is also of value in identifying abnormal epithelium.

Treatment of noninvasive vulvar carcinomas is either excisional or destructive. The major advantage of excision is that tissue is available for histologic examination and possible stromal invasion can be evaluated. Destructive therapy, using cryocautery or laser, is appropriate in patients with multiple lesions, following establishment of the histologic diagnosis. Individualization of treatment is essential.

Invasive carcinoma of the vulva should be curable in the great majority of patients. Early symptoms are pruritus, discharge or bleeding. Lesions are palpable and visible, both by the patient and the physician. Squamous cell carcinomas usually tend to be slow growing and are late to metastasize.

Problems in management occur when there is microinvasion of the carcinoma into the stroma. Inguinal lymph node metastases occasionally occur early in the course of the disease. The most significant aspect is when blood vessel or capillary-like space involvement is present. With vascular space involvement or stromal invasion of 3 mm or more, radical vulvectomy with bilateral inguinal lymphadenectomy, as in all invasive vulvar cancers, is indicated.

In addition to responsibility of the primary physician for detecting early vulvar malignancy, it is also essential that the physician be aware of appropriate and adequate treatment to ensure that his or her patient receives therapy which will most likely result in long term survival.

Paget's disease of the vulva occurs in elderly patients and is associated with pruritis, frequently of long duration. The lesions are slightly elevated or plaque-like, red and scaly. Biopsy is necessary to establish the diagnosis. Wide excision or simple vulvectomy is required to eliminate the disease and to exclude the possibility of an underlying adenocar-

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cinoma. Should the latter be present, bilateral inguinal, and possibly pelvic, lymphadenectomy is indicated. As Paget's disease is multicentric, the lesions are irregular and histologic involvement is greater than the clinical involvement, recurrences are common. Histologic study of the surgical margins, unfortunately, may not predict adequacy of the surgical resection.

Carcinoma of the Cervix

Invasive carcinoma of the cervix has progressively decreased in frequency but continues to occur. Unfortunately, demise of the patient sometimes results as treatment modalities are not always successful or metastases have already occurred. Thus, the importance of diagnosing the disease at an early stage cannot be overemphasized.

In the past over 90% of patients had squamous cell carcinoma with a smaller percentage having adenocarcinoma or adenosquamous carcinoma. In recent years the incidence of adenocarcinoma and adenosquamous carcinoma has progressively increased. The significance is that patients with adenosquamous carcinoma tend to be younger, the results of therapy are not as satisfactory and, as the lesion arises higher in the cervical canal, Pap smears frequently do not detect the lesion.

The increased incidence of adenocarcinoma and adenosquamous carcinoma may be relative, due to the early diagnosis and treatment of those patients with squamous cell carcinoma.

In a recent review of patients with carcinoma of the cervix, FIGO Stage I-B, managed on the Gynecologic Oncology Service of the University of Minnesota Hospitals, 20% of those with squamous cell carcinoma were 35 years of age or younger. Forty percent of those with adenosquamous carcinoma were in this younger age group.

All patients who have noninvasive carcinoma of the cervix (carcinoma in-situ, CIN I, II, and III) are asymptomatic. Only patients who have invasive carcinoma have symptoms referable to their disease. Symptoms of early stage invasive carcinoma are vaginal discharge or bleeding. Other signs and symptoms are of late disease.

The Pap smear has been credited with the marked decrease in incidence of invasive carcinoma of the cervix and of the decrease in deaths. However, it must be emphasized that although the Pap smear is important for the detection of cervical carcinoma, the false negative rate is approximately 25% and it is only one of the methods for detection of early disease.

In the same review at the University of Minnesota, 50% of the patients with squamous cell carcinoma had had one or more Pap smears in the three years prior to the diagnosis of invasive carcinoma. More striking is that over 60% of the patients with adenosquamous carcinoma had had Pap smears within three years of diagnosis.

Thus, Pap smears have not obtained cells from the entire transformation zone, the cytologic interpretation was not correct or the abnormal cells were higher in the endocervical canal.

Excess mucus should be cleansed from the cervix prior to obtaining the Pap smear. An adequate smear consists of scraping the transformation zone (squamo-columnar junction) and spreading the scrapings on one-half of the glass slide. Cells from the endocervical canal are obtained using a saline-moistened, cotton-tipped applicator and spreading this on the remaining portion of the slide. Fixation should take place without delay. All lesions of the cervix should be biopsied, regardless of the Pap smear report.

The management of a patient with an abnormal Pap smear is critical. The source of the abnormal cells must be identified and biopsied. If a lesion is not visible on the cervix, colposcopy with directed biopsies and endocervical curettage (ECC) is essential. Should the source of the abnormal cells still not be identified or the endocervical curettage contains carcinoma, conization of the cervix is necessary. It must be emphasized that endocervical curettage is an essential part of the colposcopic evaluation.

Adenocarcinoma of the Endometrium

At the present time three aspects of endometrial adenocarcinoma have evoked much interest and discussion.

Estrogen replacement therapy has been established as increasing the incidence of adenocarcinoma of the endometrium. The increased risk is directly related to the dosage and duration of therapy. However, the patient who develops adenocarcinoma of the endometrium associated with estrogen therapy will most likely have low stage disease (FIGO Stage I-A), low histologic grade and a lesser degree of myometrial invasion. Adequate and appropriate therapy should result in an excellent prognosis.

There are definite benefits from estrogen replacement therapy, the most accepted being the treatment of atrophic vaginitis and vasomotor symptoms. Estrogen therapy also decreases the incidence of fractures due to osteoporosis, particularly in women who have lost ovarian function earlier in the reproductive

years.

Estrogen replacement therapy for the postmenopausal woman should be given at the lowest effective dosage and for only as long as is necessary. The addition of oral progestin therapy for the last 10 days of each cycle has been recommended but has not been established as effective in preventing adenocarcinoma of the endometrium.

Investigation of intermenstrual bleeding in the menopausal patient and of any bleeding in the postmenopausal patient is essential. A variety of sampling methods have been recommended but fractional dilatation and curettage of the uterus, preferably with examination under anesthesia, should be performed. Periodic sampling of the endometrium during and following estrogen therapy has also been recommended.

The second area of concern is for the management of patients with histologic diagnoses of adenomatous hyperplasia, atypical hyperplasia and carcinoma in situ of the endometrium. Should the patient be receiving estrogen therapy, it should be discontinued. Although there are wide differences of opinion, hysterectomy with bilateral salpingo-oophorectomy must be recommended for the menopausal or postmenopausal patient. The problem of management is more difficult for the younger patient who desires preservation of her reproductive potential. Continuous oral progesterone therapy, repeat dilatation and curettage of the uterus in 3 to 6 months and followed by endometrial sampling at periodic intervals are the usual recommendations. The appropriate management of such patients continues to be controversial, particularly as pathologic interpretations vary widely. However, it must be emphasized that the younger the patient, the longer is the duration of risk for developing adenocarcinoma of the endometrium. The younger patient is frequently at jeopardy for 30 to 40 years.

The third aspect is the management of patients with adenocarcinoma of the endometrium as approximately 20% of the patients do not survive. The factors which increase the risk of the disease are undifferentiated carcinoma, endocervical involvement, deep myometrial invasion, ovarian metastases, and malignant cells in the peritoneal fluid. These factors are associated with an increased incidence of pelvic and para-aortic lymph node metastases. Myometrial invasion, ovarian metastases and malignant cells in the peritoneal fluid can only be determined by the postoperative microscopic examination of the surgical specimens.

In addition to information obtained at fractional

dilatation and curettage of the uterus, when the diagnosis is established, the other high risk factors are not identified until after surgery. Peritoneal fluid sampling, exploration with indicated biopsies and pelvic and para-aortic lymph node sampling are essential to determine the necessity for further therapy. Lymph node biopsy is necessary as metastatic cancer may be present in grossly normal lymph nodes.

Cancer of the Ovary

The devastating effects of ovarian cancer are now being more fully appreciated in the United States. Although cancer of the uterine cervix and corpus are each more frequent gynecologic malignancies, more American women die each year of cancer of the ovary than do from cervical and corpus cancer combined. Patients with advanced disease are common, even when currently available diagnostic techniques are utilized. Periodic pelvic examinations, radiologic surveys and laboratory studies have not significantly changed the incidence of advanced cancer of the ovary. The pelvic examination, in spite of its shortcomings, remains the single most useful procedure for identifying the patient with ovarian cancer. Maintenance of a high index of suspicion and the assumption that an adnexal mass is malignant until proven otherwise are essential for an early diagnosis. All prepubertal, menopausal, and postmenopausal women with a palpable adnexal mass should have an exploratory operation. It has been advocated that a palpable ovary in the postmenopausal woman is abnormal, and she should be treated in the same manner as a patient with an adnexal mass. Women in the reproductive years with cystic lesions less than 5 centimeters in diameter and who are not taking oral contraceptives may be observed for a short period of time. These same women should have surgery without delay if they are taking oral contraceptives or if the cystic adnexal mass is larger than five centimeters. All solid adnexal masses are neoplasms.

Although approximately 40 percent of all patients with ovarian cancer will have the neoplasm confined to the pelvis, involving the ovaries alone or other pelvic organs, 30 to 50 percent of these patients will develop recurrent disease. Patients with Stage I or II disease, although appearing to have the disease localized to the pelvis, have a significant risk of dying of recurrent tumor, following what was thought to be a curative surgical procedure.

Laparotomy for any adnexal mass should be undertaken with the physician and the patient fully aware that an ovarian malignancy may be present. The information obtained at the initial laparotomy is

vital to successful therapy planning. The operating surgeon must determine the extent of the cancer, obtain adequate tissue for documentation of the histologic type and estimate the volume of unresected cancer remaining in the abdomen. Thus, the initial operative procedure for patients with an adnexal mass consists of two equally important aspects: exploration of the abdomen and the definitive surgical procedure.

Intraoperative evaluation includes cytologic, visual and histologic examination of the abdominal contents. On entering the peritoneal cavity fluid should be sampled for cytology. If peritoneal fluid cannot be obtained, washings with normal saline are recovered from the pelvis and the lateral colonic gutters. The abdomen is explored by palpating the colonic gutters, the peritoneal surfaces of the diaphragm, the liver, intestine, mesentery and the pelvic peritoneum. Any questionable areas of the omentum should be biopsied. Peritoneal spread of carcinoma of the ovary is the most impressive, and in the past, attention has been primarily directed toward this type of dissemination. However, it is apparent that pelvic and para-aortic lymph node involvement is also common, even in supposedly early-stage disease, and indicates a poor prognosis. Suspicious lymph nodes are removed for histologic evaluation. Should there not be suspicious lymph nodes, sampling for occult metastases is strongly recommended. Understaging undoubtedly accounts for treatment failure of patients with supposedly early-stage disease.

Surgery is the cornerstone of therapy and the bulk of the tumor can frequently be removed. The uterus should be removed as it may be involved in the spread of ovarian cancer by retrograde lymphatics, transtubal spread, direct extension and serosal implants. The contralateral ovary should also be removed in view of the high incidence of bilateral disease. The omentum, when involved with gross dis-

ease, should be as completely removed as possible. The value of omentectomy, when clinically uninvolved, has not been proven. However, a large omental biopsy should be obtained for the detection of occult metastases. Following recovery from surgery a plan of therapy, which almost always includes chemotherapy and frequently radiation therapy, can be instituted.

The desire to preserve reproductive capacity is always a factor in the younger patient, when the tumor is of low grade malignancy and is confined to one ovary. A detailed search for extraovarian spread is absolutely imperative. Should there be evidence that the cancer is not confined to the ovary, conservative management is contraindicated. Rupture of a malignant cyst, surface excrescences or adherence of the malignancy to adjacent structures contraindicates conservative surgery as the prognosis in these situations has already been compromised. When conservative surgery is to be performed, a wedge biopsy of the contralateral ovary is usually recommended.

Improvement in the prognosis for patients who have ovarian malignancies can only be accomplished by early diagnosis, an adequate and appropriate primary surgical procedure and postoperative therapy when indicated. Thus, in addition to Pap smears, vaginal and rectovaginal examinations are an essential part of the routine pelvic evaluation.

Conclusions

The diagnosis of gynecologic malignant disease in an early stage offers the only hope for long-term survival. All symptoms and findings, such as vulvar, vaginal and cervical lesions, abnormal uterine bleeding and pelvic masses, must have definitive evaluation without delay. It is only in the early stages of disease that the current methods of treatment of invasive gynecologic cancer are most likely to be successful.

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Editorial

Is Peer Review Effective?

He who knows of the presence of evil and does nothing about it, for him it is evil.

James 4:17

James was not thinking of medical peer review but the moral precept involved is the essence of medicine's effort to guarantee the quality of medical practice. If we assume that the guarantee is professionally important to the practice of medicine, how successful are our efforts at peer review. The question is more than academic, because consumers and government consider peer review necessary, and, in the past several years, have staked out positions indicating their respective interests.

First, how does the individual physician view peer review. The spectrum of interest varies from the activist position of James all the way to a sincere view that "I do a good job, and I have no right to examine my peer's work." These opposing positions stem from personality differences. The activist may be a dedicated crusader, convinced that the profession will improve itself through peer review. He is willing to accept the personal discomfort arising from the inevitable confrontations. Crusaders are rare individuals and are numerically overwhelmed by the middle ground of physicians who grudgingly participate in peer review. If given a choice, most would prefer to remain uninvolved, so they could devote more time to the important considerations of the Vikings and deer hunting season. Some in this great middle ground are even fearful that, if they criticize a peer, they in turn will be a target for review. On the other end of the spectrum are those philosophically opposed to peer review, joining with a small group of physicians for whom peer review exists — the bad or inept guys. Indeed, personality may be *the* deciding factor in the success or failure of peer review. Since personality is immutable, can effective peer review occur.

Who should be responsible for peer review? Is the *individual physician* capable of guaranteeing good medical care? For the majority of physicians, the individual is indeed capable of such guarantee, because he can perform in no other way. By training, by conviction, by stint of his personality, he is capable *only* of doing the best for his patient within the limitations of the practice of medicine. For him peer review is unnecessary. Admittedly, the definition of the "complete" physician is not universally accepted,

but you and I know who he or she is. That leaves that segment of our physician population in which "good" medical practice does not regularly occur because of deficiencies in either intellect, energy, or basic motivation. In addition to smarts and energy, good medical practice requires a basic intent to do the best job for the patient; concern for what benefits the physician is relegated to the background. Since it is difficult for physicians to grade their practice themselves, outside interests become involved. These interests include government, professional societies, certification boards, and hospital medical staff peer review committees. Let us examine these entities and discuss their relative effectiveness.

Despite all the hand wringing and voiced premonitions of doom, government plays a small role in the quality of medical care — essentially limited to state licensing authority. Is it not reasonable for the government agency which permits us to practice medicine — and annually relicenses us — to guarantee that we perform well professionally. The licensing board effectiveness is an absolute zero. Indeed, it delicenss occasional physicians for felony convictions and sexual aberrations, but is this peer review? Hardly. The addition of mandatory CME contributes almost nothing more. If mandatory CME serves as the final stimulus to retirement decision for some doddering paranoid physician, perhaps that *is* a finite yield.

Our national, state, and county *medical societies* provide no apparent incentive to good medical practice. These organizations' review is limited to examination of medical school credentials and results of state, national, or certification boards, actually duplication of the state licensing board function, not contributing further. If graduating from medical school and passing state board exams is all that is required to define good medical practice, we may as well dispense with peer review. Indeed, medical societies add nothing to peer review.

The role of our specialty *certification boards* in guaranteeing quality medical practice is real but is limited. Board certification confirms that the physician has completed an approved residency for the pre-

scribed period of training, has gained the endorsing signature of his chief of service, and last but not least, passed an examination. Board certification is a real accomplishment, a minimal level of achievement, hopefully something upon which the physician will grow. Unfortunately for some, the path is then downhill; they never improve. Board certification is some measure of intellect and energy but does not define intent or motivation. The major accomplishment of certification boards may be a negative one; they define those physicians who are *not* certified. The average performance of noncertified physicians in a given specialty is below that of his certified counterpart. In some cases, the differences are striking. Indeed, a significant portion of our hospital peer review activity addresses the performance of non-certified specialists. In summary, certification boards play a finite but very limited role.

Where do *hospital medical staff committees* stand in guaranteeing quality medical care, at least that part of medical practice occurring within the institution. In terms of cost-benefit analysis, where the improvement in care is weighed against all the committee's efforts, we do not perform well. Is this surprising or disappointing? It certainly is no surprise and the fact that our efforts bear so little fruit is worthy of examination.

The ability of a medical staff committee to guarantee optimal medical care is compromised by a host of opposing factors. First, except for the rare crusader, committee membership is viewed as an onerous and barely necessary chore, to be served with minimum effort and to be completed as soon as possible. Doctors just don't like to stand in review of their peers; it is distasteful, a little frightening and of no material value to their practice or life.

The referral-consultation roles of committee members deters open discussion and review, because the consultant does not want to offend his referral sources. In the past we have experienced examples in which a too frank discussion of a physician's case by a consultant resulted in a major loss of referral practice.

In addition to these important personal factors, the mandate under which the committee operates is a negative one. The committee views its role as protecting the patient from poor medical care rather than guaranteeing optimal medical care. The narrow view of the committee role is responsible for its

minimal accomplishments. Before a physician's work is reviewed, his medical performance must be widely recognized as five to 10 standard deviations below the norm. If he only does a small amount of work at the institution, this substandard care is easily overlooked. When a physician's work is finally examined, a whole host of new obstacles to review come to bear, some of which are legal considerations — fear of litigation — and some of which stem from the concern of hospital administration at the prospect of the errant physician going elsewhere. Besides, it is a major task to examine a physician's performance, and after doing this distasteful chore, the unpleasant process of criticism or reduction of privileges may present. Indeed, in my 20 years of experience, successful handling of gross medical care deficiencies has been few and far between. We certainly have not defined or encouraged medical excellence. We have barely scratched the surface of substandard performance. Finally, what little is accomplished within the hospital does not apply to medical activities physicians' offices, removed from the purview of the committees. Although poorly documented, we are uncomfortably aware of the dimensions of medical gangsterism and fraud occurring in the offices of a few physicians, none of which is addressed except for the impotent action of third party payers.

Where does all this leave us, those of us who consider peer review an important professional endeavor, something we owe our patients. Realistically, the accomplishments provide little to recommend peer review. The yield of our efforts doesn't begin to approach the expenditure of time, energy and spasticity of our arteries. Yet we do not give up. Perhaps by going through the seemingly futile and endless medical staff committee discussions, we create a useful environment of awareness. Perhaps we do not give up because this is part of being a physician, the belief that the practice of medicine is more than just *my* doing a good job, the belief as James pointed out, that if you do not do something about evil, then you are equally guilty.

Seymour Handler, M.D.
Minneapolis, Minnesota

Hereditary Pancreatitis: The Need for Early Recognition

THE PAPER BY Naylor and Keller* points out that a carefully taken family history may reveal that a disease like pancreatitis, of which one may not ordinarily think as being genetically determined, may indeed have an inherited "Anlage" or predisposition. The paucity of cases thus far reported, approximately 80,¹ makes an assessment of the frequency of hereditary pancreatitis difficult.

Yet a few lessons should be remembered. The impact of hereditary diseases should not be seen only in regard to family planning, but probably equally as important in their early recognition, as prophylaxis or early intervention may alter the course of the disease. Elsewhere, it is pointed out that ductal surgery and sphincteroplasty may improve the prognosis of hereditary pancreatitis.¹

Early recognition of diseases has become an ever-more important aspect of medicine, enabling us to intervene early, or, even better, prevent the occurrence of the disease. Exercise testing taught us to suspect myocardial ischemia when clinical signs and symptoms are not yet conclusive. Enzyme tests have shown us that it is possible to identify affected but asymptomatic family members, for example, in the porphyrias. And the glucose tolerance test permits us to classify an otherwise enigmatic elevation of the blood glucose level.

These few examples and the accompanying paper may suffice to show us the importance of early recognition, be it by genetic sleuthing, provocative testing or assaying enzymes.

Claus A. Pierach, M.D.
Minneapolis, Minnesota

*See page 749.

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In Memoriam

R. Peers Buckley, M.D.

1902-1982

Dr. R. Peers Buckley, born in Duluth, Minnesota, on December 14, 1902, died October 16, 1982, at the age of 79.

A graduate of Cathedral High School in Duluth, and the University of Minnesota Medical School, Dr. Buckley interned at St. Mary's Hospital in Duluth. He engaged in private practice with Rood Hospital, Hibbing, from 1929-1933 and later interned at the University of Chicago in the Department of Pediatrics.

He was a past Chief of Pediatrics at St. Mary's Hospital and St. Lukes Hospital in Duluth; President of the Staff of St. Mary's Hospital in 1950, a member of the St. Louis County Medical Society, and President in 1953. Dr. Buckley was a member of the Minnesota Medical Association, a councilor ninth District, Chairman of the Council and President of the Association in 1966. He was the recipient of the M.M.A. Distinguished Service Award in 1969.

In addition Dr. Buckley was a Director, Arrowhead Regional Planning Council for Health Facilities and Services, Screening Physician for the Comprehensive Evaluation Clinic and Multiple-Handicapped Children, Miller Dwan Hospital, Duluth, and staff member of St. Mary's, St. Luke's, Miller Dwan Hospitals, in Duluth.

His wife Kate, two daughters Kate M. and Elizabeth A., both of St. Paul, and one grandson survive him.

Minnesota Department of Health

Laboratory-Based Disease Surveillance

A Survey of State Laboratory Directors

JANICE R. GODES, M.P.H.;* WILLIAM N. HALL, M.D., M.P.H.;† ANDREW G. DEAN, M.D., M.P.H.;‡
and C. DWAYNE MORSE, Dr. P.H.‡‡

Responses to a mail survey by 83% of the 262 clinical laboratories in Minnesota indicated that at least 28% of *salmonella* infections, 20% of *shigella* infections, 71% of *Haemophilus influenzae* meningitis, 58% of meningococcal meningitis cases, and 92% of pneumococcal meningitis cases are not reported through the present Minnesota Department of Health disease surveillance system.

Eighty-five percent of responding laboratory directors indicated that a laboratory-based surveillance system could be implemented without difficulty or would be only moderately difficult to implement, but practical thereafter. Laboratory directors described the principal disadvantages as related to time and cost demands. Eighty-two percent of the directors felt that patients and 60% felt that physicians would react positively or be indifferent to the reporting system, whereas 34% felt that physicians would react negatively to laboratory-based disease reporting. Most (93%) clinical laboratories responding would participate if laboratory-based surveillance were implemented. Laboratory directors preferred a voluntary to mandatory reporting system. A system of disease surveillance that allows, but does not require, reporting by laboratories or hospitals of findings suggestive of selected communicable diseases would probably be most effective.

THE ACUTE DISEASE EPIDEMIOLOGY Section of the Minnesota Department of Health (MDH) is responsible for surveillance of infectious diseases of public health importance at the state level. The primary purpose of infectious disease surveillance is to recognize and respond to situations that require public health action. Data are also gathered which provide current information on trends in infectious disease epidemiology.¹⁻³

Current rules on reportable diseases in Minnesota place the primary burden of reporting solely on the attending physician.⁴ The attending physician is required to report diseases of public health importance either by telephone or on a standard disease report card.

At present, 80% of the respondents in this survey send their *salmonella* and *shigella* isolates to the MDH Enteric Reference Laboratory for serotyping and confirmation. This constitutes essentially a laboratory

reporting system by means of specimen referral. Also, it allows for surveillance of the distribution of specific serotypes in the state, so that clusters can easily be recognized and public health action taken if necessary.

The purpose of our survey was two-fold: (1) to determine the potential for improvement in the surveillance of diseases of public health importance by having clinical laboratories report microbiology and serology findings that suggest the diagnosis of a reportable disease and (2) to ascertain the feasibility of implementing a laboratory-based reporting system from the viewpoint of the clinical laboratory director.

Methods

Questionnaires were sent to all general hospital clinical laboratories included in the 1979 Directory of Licensed and Certified Health Care Facilities⁵ in the State of Minnesota and all private clinical microbiology laboratories participating in the Clinical Laboratory Improvement Program at MDH in August 1979. A total of 178 general hospital clinical laboratories and 84 private clinical labs were surveyed.

Questionnaires were mailed in August 1979. A second mailing was sent to nonresponding laboratories in September 1979 followed by telephoning the remaining 90 nonresponding laboratories which was

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completed in October 1979. The first and second mailings were accompanied by a cover letter explaining the study and requesting participation in the survey; a copy of the current rules for reporting communicable diseases in the State of Minnesota was included.⁴

The questionnaire included three sections. Section I asked the Laboratory Director's opinion regarding a possible regulation that laboratories report findings suggestive of communicable disease to MDH. The system as proposed suggested the reporting of age, sex, race, locality (city or counties), date of onset, diagnosis (or positive laboratory findings) and the name of the physician for each suspected case. The patient's name would not be reported initially to maintain the confidentiality of the patient-physician relationship. If follow-up by MDH was indicated, the attending physician would be contacted first for permission to follow up the patient. Section II pertained to computer facilities available for laboratory reporting. Section III concerned the microbiology and serology activities of the laboratory and included a question requesting the number of patients from whom specified pathogens had been cultured from cerebrospinal fluid, as well as the number of patients positive for *salmonella* or *shigella* in the six-month period January 1, 1979, through June 30, 1979. The number of patients positive within each diagnostic category was compared with the number of cases reported in the same time period through the present Minnesota surveillance system, to obtain an estimate of the potential improvement in the surveillance of these diseases if laboratory-based reporting was implemented and complete.

Results

The overall response rate was 83% (216/262); 84% of the hospital clinical labs and 79% of the private clinical labs completed questionnaires. There was no

statistical significance in response rates between different geographic areas or among laboratories of large and small hospitals. Sixty-six percent of the total state clinical laboratories completed Section III of the questionnaire and therefore represents a conservative estimate of potential reporting impact (Table).

Currently, computer technology is not widely used by clinical laboratories in Minnesota. Only 11% (22) of the laboratories that responded to the survey enter laboratory results into a computer system now or proposed to do so within a year. Where computers are utilized, they are generally not programmed to provide epidemiologic data with specific laboratory results.

Although 62% (103) of the directors recognized little or no benefit to their laboratory from the proposed supplementary laboratory-based surveillance system, 49% (103) indicated that the system would not be difficult to implement in terms of resources and logistics. Fifteen percent (31) indicated that the system would be difficult or impossible to implement. When all respondents were asked to specify the principal drawbacks of the system from the laboratory point of view, 62% indicated time, "paperwork", or cost demands; 21% indicated there would be few or no drawbacks.

Eighty-two percent (150) of the 182 laboratory directors who responded to a question regarding the anticipated view of the patients they served indicated that they felt patients would feel positive or indifferent towards laboratory-based surveillance. Ten percent (18) felt patients would react negatively to the reporting system. Sixty percent (108) felt the physicians they served would feel positive or indifferent about the reporting system, whereas 34% (61) felt that physicians would react negatively to laboratory-based surveillance of reportable diseases.

Forty-two percent (87) of 206 respondents were in favor of a voluntary reporting system. The proposed

TABLE
Comparison of Number of Patients With Positive Cultures
Reported by 173 Responding Laboratories With Cases
Reported to the Minnesota Department of Health (MDH)
January 1-June 30, 1979

Etiologic Agent	Number Identified by MDH Surveillance	Number of Patients Positive Reported By Responding Laboratories	Percent Not Reported
<i>Salmonella</i> spp.	181	250	28
<i>Shigella</i> spp.	66	82	20
Meningitides:	55	213	74
<i>Haemophilus influenzae</i>	41	141	71
<i>Neisseria meningitidis</i>	10	24	58
<i>Streptococcus pneumoniae</i>	4	48	92

mandatory reporting system was favored by 30% (62), whereas 21% (43) stated they would comply if a health department rule were enacted. Only 4% (8) would strongly oppose any involvement.

Discussion and Conclusion

The ability of state and local health departments to identify outbreaks of infectious disease and take action on a timely basis depends upon good surveillance. The data suggested a modest increase in reported cases of salmonellosis (38%) and shigellosis (24%) would be possible if a clinical laboratory surveillance system were implemented and reporting were complete.

Greater relative gains in reporting of cases would be possible for the bacterial meningitides. An estimated 158 additional cases of bacterial meningitis or an estimated 287% improvement is possible. An additional 14 cases of meningococcal meningitis and an additional 100 cases of *Haemophilus influenzae* meningitis, both of considerable public health importance, might have been reported through medical laboratory-based surveillance system (Table). The number of unreported cases is not surprising for *Haemophilus influenzae* meningitis. Prior to 1978, *Haemophilus influenzae* meningitis was regarded as largely noncommunicable. Since that time controversy has existed over efficacy of prophylactic antimicrobials for young contacts of *Haemophilus* meningitis cases.⁶ Recommendations were recently published by the American Academy of Pediatrics for use of prophylactic antimicrobials for household contacts of *Haemophilus* meningitis cases.⁷ Reporting continues to be important for meningococcal meningitis cases because antibiotic prophylaxis administered without delay to intimate contacts of a case has been demonstrated beneficial in reducing secondary cases.⁸

There are several advantages to laboratory reporting as a supplementary system for communicable disease surveillance. Since most physicians see reportable diseases infrequently, reporting is an unusual event. It requires remembering reporting procedures and searching for a telephone number or the proper report card. Because laboratories usually serve large numbers of patients and are more centralized, they encounter

cases more frequently and could develop regular and systematic mechanisms for reporting those illnesses for which diagnosis is reliably confirmed in the laboratory.

Reporting by the laboratory with the physician's knowledge and agreement could save time and paperwork for the attending physician. The same convenience could be gained by assigning reporting of hospitalized patients with communicable diseases to the hospital epidemiologist. The attending physician would retain primary responsibility for reporting and continue to report diseases encountered outside the hospital, those in outbreak situations, and those for which the diagnosis is not regularly confirmed in the laboratory (e.g. measles).

A review of state health regulations revealed that twenty-five states presently have regulations requiring hospitals or laboratories to report findings suggestive of reportable communicable diseases. Four other states, including Minnesota, require laboratory reporting of only positive venereal disease tests.⁹

Improvements in the disease reporting system other than laboratory-based surveillance should be considered. Methods of increasing the frequency of reports of communicable diseases include toll-free telephone lines, prompt and effective response to reports by health departments, and various incentives such as provision of free medication or biologicals for prophylaxis of contacts. Thus, increasing the percentage of cases reported probably depends most on demonstrating to physicians that there are benefits to the physician and the patient and/or the community when a communicable disease is reported. A secondary problem — the rarity of reportable disease and the tendency to forget reporting procedures between cases could be partially overcome by supplementary reporting through hospitals and/or laboratories. If changes in reporting rules are made to facilitate such reporting, they must be viewed by the medical community as a convenience rather than an imposition. A system that allows, but does not require, laboratories or hospitals to report findings suggestive of selected communicable diseases would probably be most effective.

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History

Dr. Christopher Carli, Pioneer Physician of Minnesota

ROBERT ROSENTHAL, M.D.*

PIONEERS ALWAYS held a fascination for the writer, and it is no surprise that he became interested in Dr. Christopher Carli who came to Minnesota 141 years ago, the first civilian physician in this area. It is interesting to speculate what made a physician come to the wilderness where there were hardly any white people. An Army physician, Dr. Edward Purcell, had arrived with the first Army contingent in 1819. There were some physicians along the fur trade route and occasional missionary physicians, like Dr. Thomas Smith Williamson who came to Lac qui Parle in 1835.

Dr. Carli was the first civilian physician to settle on the St. Croix River. His family had lived in Italy but had emigrated to Frankfurt on the Main River in Germany. His father Joseph Maria Carli was a merchant. It was at Frankfurt that the last of his five children was born, who was to become Dr. Carli, born December 7th, 1811. At the age of 16 he went to Heidelberg and attended the humanistic gymnasium or high school and later the University. It was said that he gave the best years of his life to library and medical studies.

He left Heidelberg in October 1831 and a few days later embarked on a ship at Bremen bound for the United States. It was the *Constitution*, a sailing vessel. It was a long voyage, lasting 88 days; he reached New York on February 8th, 1832. Two months later, he started for Buffalo, New York, when navigation on the Erie Canal was opened. He started to practice there in March of that year and continued until December 1835, when he returned to Europe.

One of the reasons for coming to America probably was the fact that an older brother, Paul, had come to America much earlier. He was six years older.† Dr. Carli remained in Europe two years, but what he did in that time is not known. He returned to the United States

in 1837, but this time he went to Chicago where he practiced "one season". Then he moved to New Orleans where he stayed one year, returning to Chicago in 1839, again practicing there one year.

It was in 1834 that Paul Carli married Lydia Ann Brown, half-sister of Major Joseph Renshaw Brown, and here we begin to see the reasons for Dr. Carli's decision to go to this area of complete wilderness. Joseph Brown first came to this area at the age of fourteen as a drummer boy with the detachment of troops that came to build Fort St. Anthony, later to become Fort Snelling.‡ This, by the way, was the detachment that brought Dr. Purcell, who died in 1825. In that year, at the age of 20, Brown left the garrison and engaged in Indian trade. It was not until 1838 that he staked a claim on Gray Cloud Island and established a trading post there. He also held the office of Justice of the Peace. As he, no doubt, was a shrewd man, he knew the advantages in 1837 with all the speculation and immigration into this wilderness area of the Mississippi. We may surmise that he influenced and convinced the Carli brothers of the advantages, so that they decided to join him in the trip to the Minnesota area. It was said "he was the only man among Indian traders of the time with sagacity enough to distinguish the advantages in the hubbub of the wild movement of speculation and emigration that characterized the year 1837 . . . in the then remote wilderness of the upper Mississippi. . .". About seven years later he formed the first settlement, or at least the first townsite, at the head of Lake St. Croix, about a half mile above the original site of Stillwater. He called it Dahkotah (Dakotah), and hoped it would become a city.

It is quite a romantic story. Brown was at Lake St. Croix when the first lumber jacks came there. He loved the wild, untouched pine woods. He started to build a home, but before he could finish it he was sent to the territorial legislature at Madison.§ While there he remembered his half-sister Lydia in Chicago. Though he had never seen her, having left Chicago before she was born, it seems he was in touch with her in some way. Lydia had grown up in Erie County, Pennsyl-

*St. Paul, Minnesota.

†Joseph Maria Carli (1773-1854) was married to Catherina Ehemann, born 1779. They had five children. The first was Maria Magdalena Josepha, born 5/28/1802; the second was Gerhard, who died very young. The third was Franz Auton (1806-1841), the fourth was Paul (1805-1846) and Dr. Carli the fifth.

‡When Brown enlisted as a drummer boy, Lydia had not been born. In spite of the difficulties of contact, a bond must have been made and retained between them, probably due to similarities of personality.

§In 1840, the territory between the Mississippi and St. Croix Rivers became the St. Croix County under the Territorial Legislature of Wisconsin, with Brown Clerk and Registrar of Deeds and Treasurer.

vania, and came to Chicago at the age of 16 in 1834. When she arrived, she stayed at a hotel owned by Paul J. Carli, a fine looking man of twenty-eight. When her aunt sent her downstairs for a pitcher of water, she met the proprietor. Lydia was pretty and dressed well — and the inevitable happened; they were married in six weeks. To make it even more romantic — a foretuneteller had predicted that she would meet a young man on her first day in Chicago, giving an exact description of Paul. It seems that working through active, courageous sisters, Brown was able to persuade Paul Carli to come out west. Lydia, too, became an enthusiastic supporter of Brown's plans and she decided to go west with him, taking her three children and her brother-in-law, Dr. Carli.[†]

Lydia used a steamer up the Mississippi to finish her trip while her brother, with his group, including Dr. Carli, went overland. The two parties joined on Gray Cloud Island. Then one group — with Lydia — remained there while the other group proceeded to Dakotah to complete the unfinished house. This house, built of Tamarack logs, became known for a long time as the Tamarack House, a two-story building, the first real house in that area. It was primitive in many ways, especially the caulking of the chinks with plain mud; this was fairly satisfactory in dry weather, but devastating in a rain storm and had to be restored again and again. When it was finished the two families were conducted there from Gray Cloud Island by bateau, poling it for 60 miles. Brown's and Lydia's enthusiasm kept up their spirits. Mrs. Carli, it was told, was the first to step ashore. It is also said that she was the first white woman to step on the shore of the St. Croix in that area.* It must have been a trying pioneer life, and very lonely, the nearest neighbor being in Marine, 12 miles away. Food must have been monotonous and far from plenty as supplies came once a year.

The first Christmas was a remarkable experience — as described by Lydia 64 years later.[#] There were the Browns, their 3 children, Dr. Carli, Lydia with her husband and her 3 children, Indians from the Stillwater area and their children. Food was served and there were all kinds of humorous toys for the children.

The two families and Dr. Carli occupied the first house over a year when Joseph Brown decided to establish a new trading post and Paul to form his own

household. The latter staked a claim at St. Mary's Point near the mouth of Bolles Creek, Afton, and moved there with Lydia and the children. Their stay there, however, was rather short because in 1846 Paul drowned when his boat capsized within view of his house. Lydia and her children moved back to Tamarack House.

A year later, on March 12th, 1847, she and Dr. Carli were married, his future brother-in-law officiating as magistrate. This opens speculation for the more important reason of Dr. Carli's coming to this part. Lydia was a vivacious, clever woman and she often was the cleverest and liveliest person in a crowd. She was only 30 at this time. One wonders whether he was very much interested in her in Chicago and it may have been an important reason for joining the party.

In the six years since his arrival, Dr. Carli had developed a considerable practice, including all the new settlements along the St. Croix, Mendota, Fort Snelling (though the Fort always had an Army physician), St. Anthony, St. Paul, Pig's Eye, extending, as all biographical sketches mention, from Lake Pepin to Lake Superior. He was, no doubt, a well-qualified physician and surgeon and became almost a legendary figure, making his calls in any weather — on foot, horseback, buggy, skates, snowshoes or birchbark canoe. All he had were the ordinary instruments of the period and the drugs then in use. It was still before the introduction of anesthetics and long before antiseptics. Tamarack House may also be called the first drugstore, as he dispensed drugs there. Though the practice must have kept him very busy, he, as it was almost the rule with pioneer physicians, had to use other means to increase his income. And Dr. Carli was an outstanding example of this. His non-medical activities are almost too numerous to mention, but he dealt in all kinds of merchandise. He operated the first drugstore with Dr. Henry Murdock. In 1854, Dr. Carli sold the store to Dr. Murdock and from that time Dr. Murdock's advertisement is found regularly in the St. Croix Union (which had started in October 1854). He started the first bank in Stillwater at a time when fractional currency was in great demand. He issued floating scrip and it is well remembered that he redeemed all this floating scrip. He also dealt in real estate. In May 1855, he offered a large quantity of seasoned lumber and the St. Croix Union stated that "it is just what is much wanted here at this time for building and other purposes." (St. Croix Union, 5/26/1855) In the same year he opened a stone quarry.

Dr. Carli never refused to treat a patient, whether he

[†]One wonders if there was not a romantic reason to convince him to join the family.

*In St. Paul in 1841, St. Paul's chapel was dedicated by Father Galtier, and in 1843, when August Louis Larpenteur came, there were only five white families. The first physician located in St. Paul in 1847.

[#]The Stillwater Evening Gazette, Dec. 22, 1959. One wonders if that Christmas did not take place after 1846, as Lydia's husband was not mentioned.

was able to pay or not. He often was called by important and wealthy families and often to very remote areas. One time, in the middle of winter, he went on skates to Red Wing, a distance of 30 miles, on the frozen river, but he was cautious enough to have an Indian skating ahead of him to test the safety of the ice. It was said that he even went as far as 150 miles on professional calls.

That he was a civic minded citizen of Stillwater is no surprise. He was a member of the First City Council and an early City and County physician and coroner. He was an inveterate democrat of the Calhoun or States-Rights school. He and Dr. Murdock helped organize the first Stillwater Fire Department. In 1859, Governor Sibley appointed him Brigade Surgeon of the State of Minnesota. When Dr. Carli came to this part of the country, it was Wisconsin Territory and later part of Michigan and Iowa Territories. When a memorial was addressed to President Pierce asking for the organization of the Minnesota Territory, Dr. Carli and Dr. John Harvey Day of St. Paul were the only two physicians out of 61 signers.

For a time, Dr. Carli had Dr. Noyes for a partner, who had arrived in Stillwater between 1854 and 1857, a partnership which was later dissolved. Nothing more has been discovered about Dr. Noyes, not even his first name.

His home was Dakotah (later the Schulenberg addition) until the town of Stillwater was organized. His first office there was on the west side of Lower Marine Street, block 28. As the town developed, his residence changed several times. His final house he built on the plateau where Sioux Indians were encamped, on the edge of the bluff and from where he could watch life at Tamarack House and the river.

Near the end of the 1850s there were in Stillwater, besides Dr. Carli, the following doctors: Dysou, a homeopath, who came in 1858, Harlow, Muller, Noyes, Pugsley, and Rhodes. During the Civil War, several doctors left.

To illustrate the primitive state of medical care, one should consider the fact — as mentioned — that St. Paul's physician, Dr. John Dewey, did not arrive until 1847, and the first hospital in Minnesota, St. Joseph's Hospital in St. Paul, was not built until 1853 (and not opened for services until the following year). By that time, the territory had twenty physicians.

At first, Dr. Carli practiced mainly among the Indians. The St. Croix River was for a long time the only way to reach this area. There were only a few white settlers before the 1837 treaty between the Sioux and Ojibway Indians. Before that, the Indians used to call it the "Valley of the Bones", no doubt referring to the

Wars between them. Diseases were the usual ones: "Lung fever" or tuberculosis, Typhoid fever, Scarlet fever, Measles epidemics, Diphtheria outbreaks, during which Dr. Carli lost a daughter; Cholera came up the river with the steamboats in 1849-51. The main attraction of new settlers, of course, were the pine woods. A physician, a Dr. Fitch, had arrived with the first white men to explore the region — especially the Sunrise River. It seems he left after about one year, but supposedly returned a year later, associated with the St. Croix Lumber Company. As far as it is known, he never practiced medicine here. He may have come from Galena, Illinois, but no further information about him can be found. Another doctor, a Dr. Green, appeared on the scene in 1838; he, too, was interested in pine lumber. He left and returned a year later with materials for a mill and helped form the first settlement of Marine-on-the-St. Croix in April 1839 — the first in Minnesota. He, too, did not practice medicine, but engaged in cutting timber near the Kettle River.

Nor did any of the doctors coming to Northern Minnesota with the fur trade settle to practice medicine. Thus there is nothing to dispute Dr. Carli's claim to be the first physician to settle in Minnesota, or even the first physician north of Prairie du Chien.

The second physician to arrive on the scene was Dr. J. M. Covey of New York who came in 1844, but who did not practice long as he died in 1851. Two more doctors arrived in 1846 and 1847: Dr. De Witt who located in St. Croix Falls and Mrs. Page, a Thompsonian practitioner.

The marriage between Dr. Carli and Lydia was a very happy one. From her first marriage, she had 5 children between 1835 and 1846, but only two had survived. The third one, John, lived from 1840 to 1863 and the last one, Rosaltha, from 1845 to 1866. Dr. Carli and Lydia had seven children but only two survived to manhood. Socrates N. died as a young man of tuberculosis on September 14, 1879. He was survived by his brother (Dr. Carli's 6th child), Christopher H. It is interesting that he imitated his father and married his widowed sister-in-law. He became a rather important citizen of Stillwater. He had studied Civil Engineering and was proprietor of the Stillwater Limestone Quarry. He also had a photographic business and was active in the drug trade. He was well known for having supplied the town with miles of curbing and gutterwork, as well as the foundations of the new post office building and the walls of the State penitentiary between 1889 and 1892.

In his last years, Dr. Carli suffered much from "rheumatic infirmities". He died in Stillwater on

November 6, 1887. He had come at the age of 30 and was 76 when he died.*

An anecdote about the early times when there were no good roads to St. Paul was told by Louis Larpenteur, well-known businessman of St. Paul. His infant child had been very fussy one night and he worried so much that he sent to Stillwater for Dr. Carli. Some time later they met at a dinner meeting of some Pioneer society. Larpenteur sat next to him and during the dinner he asked Carli: "By the way, when you came the other night to attend my baby, you just lanced his gums and you sent me a bill of \$25. Didn't you make a mistake?" He did not answer him right away, but after a while he said, "Yes, I forgot I had to go all the way back."

Lydia was 69 when she became a widow for the

*The cause of death was given as "brainfever".

second time. As mentioned, she supposedly was the first white woman to come to the Stillwater area. There were not a dozen in the whole area of present Minnesota. Sometimes six months passed without her seeing another white woman. She seemed to be quite well educated and had the use of Major Brown's very good library. She was well known for her cleverness and vivacity. It was said she was one of the best posted women on the "olde times" to be found in the St. Croix Valley. She was an excellent converser, especially about the fashions, amusements, and trials of frontier life. The newspapers called her an interesting talker. At 83, she was still blessed with health and abundant vital energy, had a cheerful disposition and "a heart for any fate". Lydia outlived Dr. Carli by 18 years. She died in 1905 at the ripe age of 87.

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History of Washington County and the St. Croix Valley, 1881 including explorers and pioneers of Minnesota by Rev. Edward D. Neill, Minneapolis, Northstar Printing Co., 1881.

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Hundred Years of Medicine in Minnesota. Publ. by the Minnesota State Medical Assoc., St. Paul, 1941.
Augustus Easton: History of the St. Croix Valley, 1909.

Echoes from Our Past

The "Living" Bible?

JACK D. KEY, M.A., M.S.*

The following event was recorded in the *Medical & Surgical Reporter* 58:382, 1888.

Dr. Drescher, State Analyst of New Jersey, was a witness in a case, tried before a Justice of Newark, N.J., on March 2, and before giving testimony in the case, he merely made a pretence of touching his lips to the timestained volume. The counsel for the accused observed the doctor's omission, and, after arguing the case in every way that his ingenuity could suggest, he raised the point that Dr. Drescher's oath in the case was invalid, because he intentionally avoided kissing the book.

A tilt between the lawyers followed, and Dr. Drescher admitted that he did not kiss the book, but said the omission was prompted by sanitary motives and not by irreverence. He said he was afraid to touch his lips to an article that might cause disease. "So many different persons have kissed that book that I do not think it safe to touch my lips to it."

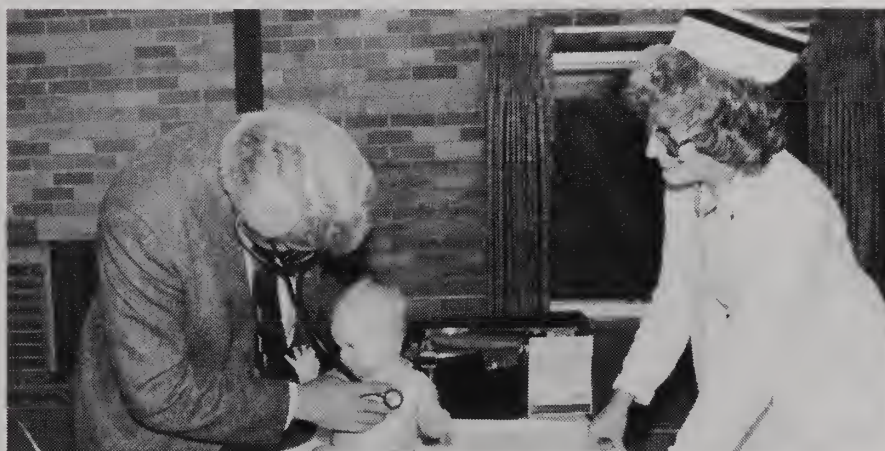
Justice Otto said the case must be reopened, and that the doctor must be sworn properly. Dr. Drescher then took the Bible, gave it a sounding smack, and then vigorously rubbed his lips with his handkerchief to remove any bacterial germs which might have been taken up in the process of osculation.

*Librarian, Mayo Clinic, Rochester Minnesota.

Minnesota Medical Association



James H. Sammons, M.D., Executive Vice President, AMA, was the guest speaker at the North Central Medical Conference Breakfast Meeting, October 31. He is pictured here (left to right) with Peggy Naas, Delegate from the Medical Student Section to the AMA House and member of the Medical Student Section Governing Council, Robert T. Kelly, M.D., AMA Trustee, and Lloyd G. Bartholomew, M.D., AMA Delegate. (Photo by Roger Johnson)



With cutbacks in government spending and unemployment layoffs, physicians are considering how to care for their patients. Dr. Anthony Rayer, a family physician in solo practice in Babbitt, in cooperation with the United Steel Worker's Local 4757, offers free clinics Tuesday and Thursday evenings. Dr. Rayer is pictured with Shirley Richtsmier, R.N. presenting a well baby examination. (Photo by Roger Johnson)

Minnesota Medical Association

CME in Minnesota

Provided through the Medical Education Subcommittee on CME Resources

For assistance with scheduling meetings, please contact the MMA office (address and phone given below) for information on future medical meetings and CME courses at the state and national level.

Information for each entry is arranged as follows: Date: Name of program: Primary sponsor: Location: Contact person.

December, 1982

4 Semi-annual Meeting: **Minnesota Obstetrical and Gynecological Society**; Minneapolis: CONTACT: Mrs. Cammy Kelley or Dr. Carolyn B. Coulam, Mayo Clinic, 200 1st St. SW, Rochester, MN 55905.

7 **Basic Cardiac Life Support Instructor Recertification**; North Memorial Medical Center, Mpls.: NMMC: CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

9-11 **Coronary Heart Disease: A Comprehensive Review of Principles and Practice**; St. Paul-Ramsey Medical Center: Radisson Plaza, St. Paul: CONTACT Ruth McIntyre, 640 Jackson St., St. Paul, MN 55101, 612/221-3980.

13 & 15 **Basic Cardiac Life Support Course**; North Memorial Medical Center, Mpls.: NMMC: CONTACT William Nelson, 3220 Lowry Ave. N., Mpls., MN 55422, 612/520-5454.

14 **Oncology**; Central Mesabi Medical Center, Hibbing: CMMC: CONTACT Florine Kealy, 750 E. 34th St., Hibbing, MN 55746, 218/262-4881.

15 **Pediatrics**; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd: CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

January, 1983

13 **OB/GYN**; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd: CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

27-February 11 **South African Adventure**; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Mpls., MN 55414, 612/378-1875.

29-February 5 **Winter Seminar, Caribbean Cruise**; Minnesota Academy of Family Physicians; San Juan: CONTACT: Chari Konerza, MN Academy of Family Physicians, 2221 Univ. Ave. SE, Suite 426, Mpls., MN 55414, 612/623-9559.

February, 1983

6-13 **Jamaican Adventure**; North Central Medical Conference; CME included; CONTACT: Karen Tourdot, Minnesota Medical Assoc., 2221 Univ. Ave. SE, Ste. 400, Mpls., MN 55414, 612/378-1875.

9-11 **Training in Pulmonary Function Testing/Spirometry**; Midwest Center for Occupational Health & Safety; St. Paul-Ramsey Medical Center: CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

10-19 **Advanced Cardiac Life Support Course**; Methodist Hospital, Methodist Hospital: CONTACT: Joan Peterson, R.N., Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5419.

11 **Quarterly Clinical Meeting: Minnesota Dermatological Society**; Hennepin County Medical Center: CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Mpls., MN 55415.

15 **Psychiatry**; St. Joseph's Hospital; St. Joseph's Hospital, Brainerd: CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

16-17 **Drug Therapy Symposium**; U of M Medical School; Location Holiday Inn — Nicollet Mall; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

17-18 **Chemical Abuse Problems: A Practical Approach for Office Practice**; U of M Medical School; St. Mary's Hospital, Mpls.: CONTACT: CME, U of M, Box 293 Mayo Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

19-26 **Annual Meeting: Minnesota Psychiatric Society**; Colorado: CONTACT: Joseph Westermeyer, M.D., Box 393, Mayo Bldg., U of M Hospitals, Mpls., MN 55455.

25-26 **ENT Problems/Primary Care**; U of M Medical School; Location Sheraton Ritz — Minneapolis: CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612-373-8012.

25-26 **Interdisciplinary Approach to Treatment of the Critically Ill Patient**; St. Paul-Ramsey Medical Center; Radisson Plaza Hotel, St. Paul: CONTACT: Ruth McIntyre, CME, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

28-March 1 **Basic Life Support Course**; Methodist Hospital; Methodist Hospital: CONTACT: Janell Haugen, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5189.

28 and March 1 **Basic Life Support Recertification Course**; Methodist Hospital; Methodist Hospital: CONTACT: Janell Haugen, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5189.

March, 1983

3-5 **Clinical Therapeutics — 1983**; St. Paul-Ramsey Medical Center; Radisson Plaza Hotel, St. Paul: CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

16 **Rheumatology**; St. Joseph's Hospital, Brainerd: CONTACT: M.A. Meusing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

16-26 **Caribbean Air/Sea Cruise**; North Central Medical Conference; CONTACT: Karen Tourdot, Minnesota Medical Association, 2221 Univ. Ave., Minneapolis, MN 55414, 612/378-1875.

March 1983 (Continued)

17-19 Cardiopulmonary Medicine, 1983; St. Paul-Ramsey Medical Center; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

19 4th Annual Update Occupational and Environmental Pulmonary Diseases; Midwest Center for Occupational Health & Safety; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

24-25 Ob/Gyn Update, 1983; St. Paul-Ramsey Medical Center; St. Paul; CONTACT: Ruth McIntyre, St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN 55101, 612/221-3992.

30-April 6, 7 Basic Life Support Instructor Program; Methodist Hospital; Methodist Hospital; CONTACT: Mary Ann Kempcke, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5167.

April, 1983

6-7 Behavioral Medicine; U of M Medical School; Kaufman Memorial Union Theater, Mpls.; CONTACT: CME, U of M, Box 293 Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

8-9 Colorectal/Primary Care; U of M Medical School; Earle Brown Center, St. Paul; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

13-15 Annual Spring Refresher; Minnesota Academy of Family Physicians; Radisson South, Bloomington; CONTACT: Chari Konerza, MN Academy of Family Physicians, 2221 Univ. Ave. SE, Suite 426, Minneapolis, MN 55414, 612/623-9559.

14-15 Pediatric Days; American Academy of Pediatrics, MN Chapter; Rochester; CONTACT: Tony Smithson, Mayo Clinic, E 9A, Rochester, MN 55905, 507/284-2511.

16 Spring Meeting; Minnesota Society of Anesthesiologists; CONTACT: David E. Byer, M.D., 200 1st St. S.W., Rochester, MN 55901.

21-23 Allergy and Immunology; U of M Medical School; Mayo Memorial Auditorium, Minneapolis; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

22 11th Annual Pediatric Challenges for Primary Care Physicians; Mpls. Children's Health Center; MCHC; CONTACT: James Moore, M.D., Indian Health Board, 2495 — 18th Ave. So., Minneapolis, MN 55404, 612/721-7425.

23 Spring Meeting; Minnesota Urological Society; Minneapolis; CONTACT: Robert P. Myers, M.D., Dept. of Urology E 17A, Mayo Clinic, Rochester, MN 55905.

25-26 Vitreo-Retinal Disease; U of M Medical School; Holiday Inn, Minneapolis; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

May, 1983

2-6 Family Practice Review and Update; U of M Medical School; Radisson Hotel, St. Paul; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

12 Medicine; St. Joseph's Hospital; St. Joseph's Hospital; CONTACT: M. A. Muesing, M.D., 303 Kingwood, Brainerd, MN 56401, 218/829-3568.

12-21 Advanced Cardiac Life Support Course; Methodist Hospital; Methodist Hospital; CONTACT: Joan Peterson, R.N., Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5419.

13 Quarterly Clinical Meeting; Minnesota Dermatological Society, Minneapolis; CONTACT: J. Corwin Vance, M.D., Dept. of Dermatology, HCMC, 701 Park Ave. S., Minneapolis, MN 55415.

13-15 State-of-the-Art in Clinical Anesthesiology; Rochester; CONTACT: David E. Byer, M.D., 200 1st St. SW, Rochester, MN 55905, 507/286-8701.

16-17 Topics and Advances in Pediatrics; U of M Medical School; Location undetermined; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Minneapolis, MN 55455, 612/373-8012.

19-20 1983 Scientific Program; Minnesota Medical Association; Minneapolis; CONTACT: Eugenia C. Kassir, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

23-24 Basic Life Support Course; Methodist Hospital, Methodist Hospital; CONTACT: Janell Haugen, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5189.

June, 1983

3,4,5 Annual Meeting; Minnesota Thoracic Society; Location undetermined; CONTACT: Fred Rasp, M.D., 606 24th Ave. So., Suite 119, Mpls., MN 55454, 612/333-2156.

10-11 Annual Meeting; Minnesota Obstetrical & Gynecological Society; Barker's Island, Superior, Wisconsin; CONTACT: Mrs. Cammy Kelley or Dr. Carolyn B. Coulam, Mayo Clinic, 200 1st St. SW, Rochester, MN 55905.

10-11 Clinical Hypnosis; U of M Medical School; U of M, St. Paul; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455 612/373-8012.

14, 21, 22 Basic Life Support Instructor Program; Methodist Hospital, Methodist Hospital; CONTACT: Mary Ann Kempcke, Methodist Hospital, 6500 Excelsior Blvd., P.O. Box 650, Mpls., MN 55440, 612/932-5167.

15-18 G.I. Surgery; U of M Medical School; Willey Hall West Bank, U of M, Mpls.; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

23-25 Behavioral Pediatrics; U of M Medical School; U of M, St. Paul; CONTACT: CME, U of M, Box 293, Mayo Memorial Bldg., 420 Delaware St. SE, Mpls., MN 55455, 612/373-8012.

For further information on *future* CME programs, contact Department of Education & Specialty Affairs, Minnesota Medical Association, 2221 University Ave. SE, Suite 400, Minneapolis, MN 55414, 612/378-1875.

Minnesota Heritage

Thousands of you have discovered the rich legacy of Minnesota cooking through the *Minnesota Heritage Cookbook*. But **beyond your own kitchen and just down the road lies another part of your heritage.** The innkeepers of Minnesota's historic restaurants offer delightful cuisine the way Grandma used to make it. This calendar is a visual invitation to travel the city and state and discover for yourself the culinary legacies and warm hospitality that these hotels and restaurants have provided for over 100 years . . .

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3316 West 66th Street
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1983 MMA Annual Meeting

May 18-20, 1983

(Wednesday-Friday)

Radisson South Hotel, Bloomington

Highlights of the Month

Each month MINNESOTA MEDICINE will highlight a different aspect of the 1983 Scientific Program and one or more of the special events planned in conjunction with the Annual Meeting.

Scientific Program

The 1983 Scientific Program includes a Friday morning plenary session on "*Physicians and Their Families*" followed by related breakout sessions all of which will be open for spouse participation.

"*Parenting Young Children/Adolescents*" will be jointly presented by Marvin Ack, M.D., of Children's Health Center, Minneapolis, and Elizabeth Jerome, M.D., of Minneapolis. "*The Physician's Family and Drug Abuse*" will be led by Samuel Hall, M.D., of St. Paul Ramsey Medical Center. "*Coping With Stress*" is another breakout session being planned to include spouse participation.

Physicians' Art Show

The Physician as Artist — An Exhibit of Original Art by Minnesota Physicians will be repeated in 1983. See separate announcement and tentative reservation form in this issue of MINNESOTA MEDICINE.*

Future Announcements in MINNESOTA MEDICINE and the MMA MONITOR to Include More Highlights of the 1983 Annual Meeting.

For further information on the Annual Meeting, contact:

Eugenia C. Kassar, Assistant Director
Department of Education & Specialty Affairs
2221 University Avenue S.E., Suite 400
Minneapolis, Minnesota 55414
612/378-1875

*See page 774.

Cover Photograph

"Bryce Canyon"

Dr. Thomas Ala, a second year resident specializing in neurology, took the cover photograph while on his honeymoon in 1974. He used a Nikon camera, 400 mm lens, with Kodachrome 25 film at 1/125th F/8.

He is from the Upper Peninsula in Michigan; secured his medical education at the University of Minnesota Medical School, and plans to practice in Minnesota.

He and his wife with their two daughters, five and seven, live in Mahtomedi, Minnesota.

Photography is one of his hobbies.

The Physician As Artist —

An Exhibit of Original Art by Minnesota Physicians

An Exhibit of Original Art by Minnesota Physicians
Sponsored by the Minnesota Medical Association
At Its 1983 Annual Meeting, May 18-20, 1983
Radisson South Hotel, Bloomington

The Annual Meeting Planning Committee for the 1983 MMA Annual Meeting wishes to repeat the physicians' art show. The art show will be open during exhibit hours on Thursday and Friday, May 19-20, 1983.

If you would like the opportunity to exhibit your work to your physician colleagues, please send in the form below *today* so that space can be reserved for your exhibit. We will send more complete information and an official application form in February.

A nominal fee will be charged to defray the cost of security. This can be submitted with the *official application form* to confirm your entry.

Do you know another physician who is an artist? Why not pass along this announcement?

"The Physician as Artist" — Tentative Space Reservation

Please reserve space for me on a tentative basis for an exhibit at "The Physician as Artist", MMA Annual Meeting, May 18-20, 1983, and send further details and an application form.

NAME _____
(Please Print)

ADDRESS _____

OFFICE PHONE _____ HOME PHONE _____

The category of the item I wish to exhibit is:

(Check one — available space will allow only *one entry per individual*)

☐ Oils	☐ Drawings	☐ Ceramics
☐ Acrylics	☐ Watercolors	☐ B/W Photography
☐ Sculpture	☐ Woodcarvings	☐ Colored Photography

Estimated dimensions/size: _____

PLEASE SUBMIT THIS RESERVATION BY *February 1, 1983* SO THAT AN OFFICIAL APPLICATION FORM CAN BE SENT.

Please send to: Dept. of Education & Specialty Affairs, Minnesota Medical Association,
2221 University Avenue S.E. — Suite 400, Minneapolis, Minnesota 55414.

Classified Advertisements

Classified advertising rates are forty (40) cents a word; minimum monthly charge \$10.00, key number, \$2.00 additional. Replies to advertisements with key numbers should be mailed in care of Minnesota Medicine, 2221 University Ave. S.E., #400, Minneapolis 55414.

Placement of ads by telephone not accepted. We also reserve the right to decline or withdraw advertisements at our discretion. Every care is taken to avoid mistakes but responsibility cannot be accepted for clerical or printers errors.

Cancellation of ads must be made before the 10th of the preceding month's issue.

The Journal is not permitted to divulge the identity of advertisers who have replies sent to box numbers.

ST. PAUL-RAMSEY MEDICAL CENTER, Department of Psychiatry, career opportunity for a psychiatrist available in July, 1982. The position calls for clinical, educational and research efforts in the specialty. Competitive salary structure with liberal fringe benefits included. Applicants should contact Dr. V.B. Tuason, Department of Psychiatry, St. Paul-Ramsey Medical Center, 640 Jackson, St. Paul, MN. 55101.

PEDIATRICIAN — BC/BE to join a 12 doctor multi-specialty group, southern Minnesota community of 12,000 (Trade area 70,000). Fairmont is a progressive city with excellent schools and recreational areas around a chain of five lakes. First year salary guaranteed with full partnership after one year. Contact Don Grandgenett, Administrator, Fairmont Medical Clinic, P.A., Fairmont, MN 56031. (507) 238-4263.

INTERNIST-CARDIOLOGIST, INTERNIST-NEPHROLOGIST specialty positions available with Mankato Clinic, Ltd. Our 30 man multi-specialty group attracts specialty referrals from a southern Minnesota area of 200,000 population. Excellent group practice opportunity in All-American community with full hospital services; full range of group fringe benefits; liberal time off; salary first year; incentive pay thereafter. For more information call collect R. F. Roskens, Administrator, or Dr. B. C. McGregory, 507-625-1811.

DOCTORS NEEDED in Wisconsin and Minnesota, all specialties, all locations. For confidential information, mail your C.V. to Medicus, W62 N281 Washington Avenue, Cedarburg, Wisconsin 53012.

GENERAL SURGEON to join progressive multi-specialty group of 40+ physicians. Pleasant, growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Call J.P. Merickel, M.D., 612-231-5000.

LOCUM TENEN SERVICES — If you need temporary coverage or wish work providing coverage in primary care, contact: INTERHEALTH, 5695 Merry Lane, Excelsior, MN 55331. 612/474-4372

WANTED: Board Certified/Eligible physicians under age 58 in OBG, General/Orthopedic Surgery, ENT, Urology, Ophthalmology, Dermatology, Oncology, Rheumatology, and Hematology to relocate with U.S. Air Force group-type practice. Full range, high-quality benefits. Replies to Fred Conley, 2829 University Ave. SE, Suite 444, Minneapolis, MN 55414 (612) 331-8216.

ONCOLOGIST or general internist wanted to join three-man group in community of 15,000. Position open summer 1983. Excellent medical facilities. Send C.V. to J. E. McCrery, M.D., 1525 Broadway, Alexandria, MN 56308. (612) 762-2192.

FAMILY PHYSICIAN to join well established primary care practice. Newly remodeled clinic attached to modern hospital. First year guaranteed plus benefits. Contact Dr. Larry Rapp, Medical Arts Clinic, Elbow Lake, Mn. 218-685-4406 or Russell Sauer — 218-685-5272.

GENERAL SURGEON AND/OR OB/GYN SURGEON to join 10 doctor multi-specialty group in Owatonna, a community of 18,500 located 68 miles south of the Twin Cities and 42 west of Rochester. Present staff consists of 7 family practitioners, 2 internists, and 1 general surgeon. Other specialties in the community and a close working relationship with the Mayo Clinic, the University of Minnesota hospitals, and other metropolitan centers provide for excellent consultations. Guaranteed salary first year with incentive program thereafter. Group Health, disability, life and accident insurance, retirement profit sharing, and automobiles provided by corporation. Contact: J. D. Miller, M.D. or James Wilkus, Administrator, Owatonna Clinic, P.A., 134 Southview, Owatonna, MN 55060. Telephone (507) 451-1120.

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FAMILY PHYSICIAN FOR PROGRESSIVE RURAL MINNESOTA CLINIC. New and superbly-equipped facility. A pleasant farming community in a physician shortage area, yet only 25 minutes from a metro area. A comfortable call schedule at nearby hospital. Gateway to Minnesota's famous lake country. Young and growing practice with excellent salary and benefits, ownership potential. Must be board-eligible. Call or write to Mr. David A. Nelson or Faris Keeling, M.D. at 218-354-2111 or write to Barnesville Area Clinic, P.O. Box 521, Barnesville, MN 56514.

PEDIATRICIAN, board certified/eligible, to join progressive multi-specialty group of 40+ physicians. Pleasant growing community. Many outdoor recreational opportunities. High quality of life. Referral area: 150,000. Liberal financial benefits. Send curriculum vitae and references, Attn: D. C. Schroeckenstein, M.D., 101 Willmar Avenue, Willmar, MN 56201.

PSYCHIATRIST. St. Peter Regional Treatment Center has salaried positions for psychiatrists in several areas of clinical practice. We are a 600 bed psychiatric facility serving a multitude of disability groups including mentally ill, chemically dependent, mentally retarded and mentally ill and dangerous. Join an expanding group of academically oriented board certified psychiatrists with University of Minnesota affiliations. We can shape your clinical activities to fit your interests and your need for professional growth. Release time for teaching and research activities is available. St. Peter is a college town of 9,000 in the Minnesota river valley with abundant outdoor recreation and good schools. Salary up to \$68,000 per year with board certification and relevant clinical/academic/administrative experience. Contact Tom Stapleton, M.D., Chief of Staff, at 100 Freeman Drive, St. Peter, MN 56082 or call me collect at 507-931-7102.

FAMILY PRACTICE Opportunity in St. Paul. Available immediately, also will consider 1983 residents. Guarantee salary and complete benefit package. For additional information, mail your C.V. to Medicus, 1525 Wisconsin Avenue, Grafton, Wisconsin 53024.

LA CROSSE — DYNAMIC 52-physician multispecialty clinic is recruiting in the following specialties: General/Vascular Surgery, Neonatology, Neurology, Ophthalmology, Family Practice. Strong in primary and secondary care, we have six active satellite clinics. Modern 350-bed hospital with CT scanner and medical staff of 92 M.D.'s, including neurosurgeon, immediately adjacent to clinic building. La Crosse is a progressive, family-oriented city of 50,000 in the beautiful Mississippi River Valley with a medical referral area of greater than 200,000. Exceptional cultural, educational and recreational opportunities locally. Contact: P. S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 S. 10th St., La Crosse, WI 54601. Phone (608) 782-9760.

OPENINGS NOW AVAILABLE in Family Practice, OB-GYN, and Orthopedics. The Albert Lea Medical & Surgical Center, Ltd. is actively recruiting for the above positions to be filled hopefully by July-August 1983. We are an eighteen man multi specialty group with excellent benefits. Full participation after the first year. No accounts receivable buy in; incentive income plan; full and complete medical and life insurance coverage; excellent pension profit sharing program. We are recruiting family practitioners for near by satellite clinics. All moving costs assumed by the clinic. Contact G. C. Wilcox, M.D. at clinic (507) 373-1441 or at home (507) 373-6974, or the Clinic Administrator C. C. Lowery at clinic (above), or at home (507) 373-8083.

MARSHFIELD CLINIC, a major multispecialty referral center, is seeking family practitioners for outpatient satellites. Rural location in beautiful central Wisconsin. Excellent salary and fringe benefits. Must be board certified/eligible. Send curriculum vitae to Frederic P. Wesbrook, M.D., 1000 N. Oak Avenue, Marshfield, WI 54449.

FAMILY PRACTITIONER — Immediate need to associate with busy, Board Certified Family Practitioner in Tomah, Wisconsin. Modern clinic, 57-bed local hospital, and formal association with 52-physician multispecialty clinic in La Crosse, WI. Tomah is an active, growing community of 7,000 with a medical service area of 20,000. Contact: P. S. Shultz, M.D., Medical Director, Skemp-Grandview-La Crosse Clinic, 815 S. 10th St., La Crosse, WI 54601. Phone (608) 782-9760.

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OPPORTUNITY FOR qualified physicians at the Albert Lea Clinic, P. A., in Albert Lea, Minnesota. The clinic is a seventeen man multi-specialty group in primary and secondary care fields. The financial rewards are exceptional and practice challenges very attractive. There is a negotiated salary at top level for the first year. Senior physician participation begins at the end of the first year with a incentive income distribution plan plus expanded fringe benefits. The clinic has a low cost buy in with a maximum profit sharing plan. There is a top level insurance program, medical reimbursement program, and a full range of other benefits. A nearly new hospital in the city provides an exceptional place to work. These are choice practices in a delightful place to live. We are currently looking for physicians in general orthopedic medicine, in Otolaryngology, one OB-GYN. We also have positions open in family practice for two physicians for the main clinic and one for a country branch clinic physician. These three must be filled by mid 1983. Please contact B. J. Boss, Administrator, Albert Lea Clinic, P. A., 1602 Fountain Street, Albert Lea, MN 56007. Phone 507-373-8251. Personal phone 507-377-1406 or contact L. E. Shelhamer, Jr., M.D., 507-373-8251 or personal phone 507-377-1530.

COMMUNITY PSYCHIATRIST: Excellent opportunity for diversified practice with stable and innovative mental health organization. Current staff includes one full time and two part time experienced psychiatrists as well as more than 65 other direct care and support staff. Programs include inpatient, partial care, outpatient, special services for children, the elderly, and the chronically mentally ill as well as alcohol and drug dependency, and a very interesting comprehensive pre-paid program with a health maintenance organization. The Center has strong public and private support and serves an area of about 100,000 people. The area has extraordinary four-season recreational opportunities, yet is close to cultural and population centers. Current salary range is \$50,000-65,000 with appointment above minimum possible depending on qualifications. Included also is an attractive fringe package including interview expenses and a generous moving allowance. If interested, please contact Miller A. Friesen, Executive Director, Range Mental Health Center, Box 1188, Virginia, MN 55792 or call (collect) 218-749-2881. AA/EOE

FAMILY PHYSICIAN wanted for hospital, nursing home and large well equipped out-patient clinic attached to facility. Also newly opened extension clinic located eight miles from Harmony, beautiful location. Harmony is located in the Southeastern part of Minnesota Hiawatha River Valley, 50 minutes from La Crosse, WI, and three hours from the Twin Cities. County population 22,000. Salary and benefits open to negotiations. Contact James G. Blum, Administrator, or J. D. Nehring, M.D., Box 275, Harmony, MN 55939 or phone 507-886-6544.

FAMILY PHYSICIAN to join group of six Board Certified Family Practitioners and one Board Certified General Surgeon. Liberal vacation and educational allowances. Competitive salary first year with incentive bonus, and full membership after one year. Blue Earth is a farming town of 4000 in Southern Minnesota with a drawing area of 25,000. 35 bed hospital with adjoining clinic facilities. Complete ancillary support including anesthesiology, radiology and pathology. Excellent opportunity for an aggressive young family physician. Please contact: Thomas E. Watts, M.D., Blue Earth Medical Center, Ltd., 520 South Galbraith, Blue Earth, MN 56013. Phone: (507) 526-7371, Personal Phone: (507) 526-3177, Or Contact: Marjeane Werner, Clinic Administrator, Phone: (507) 526-7371, Personal Phone: (507) 854-3682.

WANTED: FAMILY PHYSICIAN. Board certified or eligible, to help solo physician in South Minneapolis do full time family practice. First year salary leading to full partnership. Part time work available. Write: Minnesota Medicine-727 2221 University Avenue So. E. #400, Minneapolis, MN 55414.

DERMATOLOGIST. Board certified/eligible to join progressive multi-specialty group of 40+ physicians. Pleasant growing community. Many outdoor recreational opportunities. High quality of life. Referral area, 150,000. Liberal financial benefits. Send curriculum vitae and references, Attn: T. A. Breen, M.D., 101 Willmar Avenue, Willmar, MN 56201.

APPLICATIONS WELCOMED from board-certified general radiologists with special interest in nuclear medicine at Saint Paul-Ramsey Medical Center. U of M Teaching appointment. Salary negotiable. Start immediately. Contact Philippe L'Heureux, M.D., (612) 221-3797.

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ORTHOPEDIC SURGEON wanted to join multi-specialty group consisting of 58 physicians located in west central Wisconsin, a city of 50,000 with a State University of 12,000 — 90 miles east of the Twin Cities. Excellent opportunity for a stimulating practice in a pleasant environment. If interested contact Donald R. Griffith, M.D., Medical Director, Midelfort Clinic, Ltd., 733 West Clairemont Avenue, Eau Claire, Wisconsin 54702 or call (715) 839-5222.

VAIL — 2 bedrooms, Sleeps 4-6, Kitchen, View Slopes. \$610/week. LESS LOW SEASON (303) 832-1900, (303) 425-0961.

CHIEF OF MEDICINE: position available in a medical center with 423 medical and 410 psychiatric beds. Located 60 minutes from Minneapolis/St. Paul metropolitan area. The position offers: competitive salary, 40-hour week, malpractice coverage, 30 days paid vacation, other excellent fringe benefits in JCAH accredited progressive medical center. Responsible for professional staff of 21 which includes 11 physicians, 4 physician assistants and complemented by 27 specialty consultants. Medical Service includes 6-bed ICU, 20-bed RCU, 20-bed Acute Medicine Section, Pulmonary Function Laboratory and 377-bed Intermediate Medicine Section. St. Cloud area provides high quality family living with clean air, easy access to wide variety of four-season outdoor recreational opportunities, excellent educational facilities including State University and two private colleges. St. Cloud VA Medical Center works closely with Minneapolis VA Medical Center which is affiliated with University of Minnesota Medical School. License in any state accepted, prefer Board Certification, financial assistance to defer cost of relocation, Equal Opportunity Employer. Write or call Chief of Staff, VA Medical Center, St. Cloud, MN 56301 (612) 252-1670.

SHARE MED. OFFICE — Former Clinic — Completely equipped for General Practice, Surgery, or Industrial Sur. including Phys. Therapy, lab & pharm. Xray equip & dark room not being used, but available. May call Mon. 9 AM thru Fri., 1 PM. 612-776-2744.

ORTHOPEDIC SURGEON: Cambridge, Minnesota: 45 minutes from downtown Twin Cities: Beautiful recreational area: Good schools: New Hospital: Excellent opportunity for board Certified Orthopedic Surgeon to join 17-man multispecialty group, including one existing Orthopedic Surgeon: 1st year salary + : 2nd year partnership available: Please contact Administrator Al Nelson at 612/689-1411, Minneapolis 612/434-6622, or home phone 612/396-2504.

EASTER WEEK CME CRUISE/CONFERENCE ON MEDICOLEGAL ISSUES — April 2-9, 1983, Mexican Riviera. 18 CME CAT. 1 credits. FLY ROUND-TRIP FREE TO LOS ANGELES. Excellent group fares on finest ship. Registration limited. Tax deductible under 1976 Tax Reform Act. Information: International Conferences, 189 Lodge Ave., Huntington Station, N.Y. 11746. (516) 549-0869.

INTERNIST, GENERAL. Locum tenens. Bloomington-Lake Clinic. January 1, 1983 (or later) until July 1, 1983. Peter Menge, M.D., 3017 Bloomington Avenue, Mpls, 721-6511.

EMERGENCY MEDICINE: Directorship position available in moderate volume emergency department located in northeastern MN. Outstanding income; paid malpractice insurance; and health, life and disability insurance will be provided to the experienced individual. Forty hour work week. For complete details call or write Stephanie Zwibelman, Spectrum Emergency Care, Inc., 999 Executive Parkway, St. Louis, MO 63141; 1-800-325-3982.

FOR SALE: Burdick diathermy MW200, Unimeter 250, Keystone View FAA telebinocular, 8½ x 11 sheets/cards printed X-rays, hospital, laboratory, etc. for files. Alice Winge, 1001 Kingman Ave., Red Wing, MN 55066, 612-388-1223.

GROW WITH US IN THE SUNBELT — The INA Healthplan needs physicians in family practice and most specialties in Miami, Tampa, Dallas, Houston, Phoenix, Tucson and Los Angeles. Attractive salaries and comprehensive benefits including professional development, retirement and profit sharing programs are provided. If team interaction and casual living interest you, send a brief CV to Medical Administration, INA Healthplan, Inc., 7616 LBJ Freeway, Suite 303, Dallas, Texas 75251.

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ALL OF THE ADVANTAGES . . . An opportunity to practice primary care with a progressive group of physicians that values quality medicine, patient and family — centered practice, continuity of care, service to the community, and group compatibility in a location where the advantages of the Twin Cities are easily available but in a small town with the freedoms of a slower paced atmosphere.

This four-physician Family Practice is interviewing for two Family Practitioners to join the group to meet the patient needs in Glencoe and Lester Prairie, Minnesota. Glencoe is an ideal community — excellent schools, established industry and commerce, accredited hospital — and is only 53 miles from Minneapolis/St. Paul.

We welcome your interest and questions. Please contact Donald B. Rudy, M.D. or Gary Van House, Administrator, Glencoe Medical Clinic P.A. 525 East 18th Street, Glencoe, Minnesota 55336, (612) 864-3116.

MODERN MEDICAL OFFICE SPACE — Excellent opportunity for physicians to practice in a professionally managed medical building. The Gallery Professional Building's St. Paul location, new management, sky-bridge connection to St. Joseph's Hospital, competitive rental rates and free office design service is only part of the complete package we offer to the established or beginning physician. For further information call Charlie Kundinger or Ken Swinnerton at (612) 292-9493.

UNTOUCHED GASPARILLA ISLAND on the Gulf Coast of Florida. Spacious 2 bedroom — 2 bath condominium on the ocean. Tennis, swimming, golf, shelling and fishing. For more information, call (612) 872-4788.

GENERAL/FAMILY PRACTITIONER Busy practice in progressive, rural community. Practice includes rotating satellite clinic and call schedules. Salary minimum of \$50,000 and negotiable, excellent benefits, moving/interview expenses, corporate membership available. Well equipped hospital. Abundant recreation. For more information call 701-246-3391, extension 59 or 50, or submit resume to Rolette/Dunseith Clinic, Box 508, Rolette, N.D. 58366.

OFFICE SPACE FOR RENT: Physician in Medical Arts Building, 825 Nicollet Mall, Minneapolis, wishes to sublet his facilities to another physician on a part-time basis for the purpose of sharing overhead expenses. Call (612) 370-0553.

PATIENTS WANTED: We need patients with pure non-specific vaginitis (*Haemophilus vaginalis*, *Gardnerella*) to participate in a randomized, placebo-controlled trial of the four active components of Sultrin cream versus metronidazole. Patients must be 18 to 65, non pregnant, and must not have received systemic or vaginal antibiotic therapy within the last 6 weeks. Patients will receive \$50.00 for participation and all clinic visits will be paid by the study. For further information please contact: Dr. Marilyn Joseph, University of Minnesota Department of Obstetrics and Gynecology (612) 373-5293.

THE NICOLLET CLINIC has openings for two qualified physicians specializing in Obstetrics-Gynecology. This multispecialty Clinic was founded in 1921 by Department Chairmen of the University of Minnesota Medical School. It now has five fully equipped, modern offices and cosponsors a successful HMO. The Clinic is located in a medical community of high professional standards, ample hospital facilities and an outstanding medical school. Members of the Clinic have the possibility of teaching appointments at this medical school. In addition to excellent fringe benefits offered by the Clinic, the Twin Cities area has exceptional cultural, educational and recreational advantages. Interested physicians should be Board Certified or Eligible. Please send resume and cover letter to: Mr. Mark S. Fisher, Manager, Administrative Services, The Nicollet Clinic, 2001 Blaisdell Avenue, Minneapolis, Minnesota 55404.

VACATION OPPORTUNITY — Luxury 56-foot sailboat with captain and/or crew can meet your party of four to eight at any U.S. Bahamian or Caribbean port. Pick from a dozen Spindrift tours or plan your own cruise. Call (612) 872-4788 for more information.

INTERNIST wanted to join established primary care clinic of five family practitioners and a general surgeon. Excellent clinic facility adjacent to hospital. Located in a small town (service area population 15,000) only 22 miles from Duluth providing excellent referral and continuing ed resources. Guaranteed first year salary with good benefit program. Live, work and play on the beautiful north shore of Lake Superior. Position available immediately, but will consider July 1983 starting date. For more information call or write John Bjorum, Executive Director, Community Health Center, 4th Street at 11th Avenue, Two Harbors, MN. 55616. (218) 834-2171.

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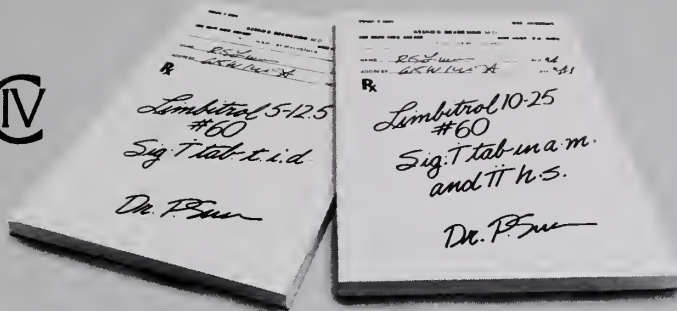
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References: 1. Cloghorm J. *Psychosomatics* 11:438-441, Sept-Oct 1970. 2. Rickels K. Drug treatment of anxiety, in *Psychopharmacology in the Practice of Medicine*, edited by Jarvik ME. New York, Appleton-Century-Crofts, 1977, p. 316. 3. Boldessarini RJ, Torsy D. Tardive dyskinesia, in *Psychopharmacology: A Generation of Progress*, edited by Lipman MA, DiMascio A, Kilom KF. New York, Raven Press, 1978, p. 999.

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Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus.

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia.

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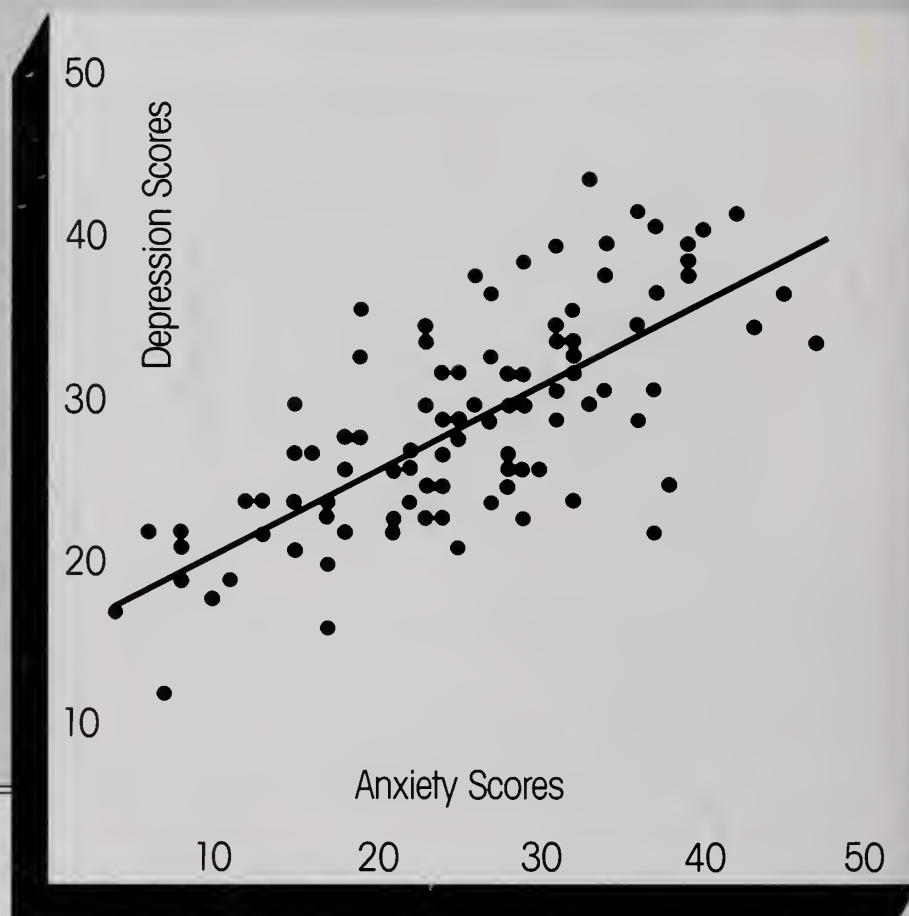


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1. Claghorn J: *Psychosomatics* 11:438-441, Sept-Oct 1970

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